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This journal published seven research and academic papers, and one book review. In addition, each of the research and academic articles presented such interesting concepts, for employees' motivation, customer's satisfaction, financial planning for retirement, sustainability reporting and competitive advantage strategy, leading to creating new knowledge to the reader. Therefore, this journal is a channel disseminating the knowledge of business administration, accounting, and finance which related persons could apply it for further benefits.

Lastly, the editorial department and editorial board would like to considerably thank you for supporting and pushing forward this journal to occur and well accomplish. We are hopeful of your good cooperation and continuing support in the future.

Asst. Prof. Suraporn Onputtha, Ph.D.
Editor-in-Chief

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THE INFLUENCE OF TECHNOLOGY AND ORGANIZATIONAL SUPPORT FOR REMOTE WORK ON FIRM PERFORMANCE IN THE NEXT NORMAL ERA: THE MEDIATING ROLE OF STRATEGIC AGILITY

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ABSTRACT

Purpose – The purpose of this research was to examine how technology and organizational support for remote work affect firm performance, with strategic agility as a mediating variable.

Methodology – This quantitative research employed survey method using validated questionnaires for data collection. The respondents were 400 employees in private companies located in the Bangkok Metropolitan Region. Descriptive statistics used for data analysis included frequency, percentage, mean, and standard deviation. Due to hypothesis testing, inferential statistics were used, specifically Pearson's Product Moment Correlation Coefficient and Partial Least Squares-Structural Equation Modeling (PLS-SEM).

Results – The structural model results revealed several key findings. Technology support demonstrated a direct negative effect on firm performance ($p < .05$), while organizational support showed a direct positive effect on firm performance ($p < .001$). Both technology support and organizational support positively influenced strategic agility ($p < .001$), which in turn positively affected firm performance ($p < .001$). The mediation analysis confirmed that strategic agility serves as a significant mediator between technology support and firm performance ($p < .01$) and between organizational support and firm performance ($p < .001$). Notably, while technology support had a negative direct effect on firm performance, its total effect (including indirect effects through strategic agility) was not statistically significant, suggesting that strategic agility fully mediates this relationship.

Implications – The findings highlight that organizations should develop both technological and organizational support systems to enhance strategic agility and improve performance in remote work settings. Investing in technology infrastructure while fostering flexible work cultures and developing employees' digital capabilities will maximize effectiveness and strengthen competitive advantage.

Originality/Value – This research advances dynamic capabilities theory by revealing strategic agility's mediating role between support systems and firm performance. It offers a new perspective on the technology productivity paradox while contributing to remote work literature in contemporary business environments.

Keywords: Next normal era, Technology support, Organizational support, Strategic agility, Firm performance

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INTRODUCTION

Over the past decade, technological advancements and evolving work patterns—especially during the COVID-19 pandemic—have compelled organizations to adopt remote work as a means of survival and growth in an uncertain environment (World Economic Forum, 2023; Gartner, 2021). Remote work not only reduces operational costs and increases organizational flexibility but also serves as a vital strategy enabling businesses to respond effectively to changes in the post-pandemic era. However, this shift also introduces challenges such as disrupted communication, difficulties in time management, and issues in maintaining work-life balance (Urbaniec et al., 2022). To address these concerns, organizations must provide both technological and organizational support to foster employee satisfaction and performance (Carnevale & Hatak, 2020; Bartsch et al., 2021).

Technology and organizational support play a critical role in ensuring the success of remote work, encompassing the provision of equipment, software, training, and flexible work policies (Bartsch et al., 2021; Contreras et al., 2020). When integrated with strategic agility, such support mechanisms enable organizations to quickly sense and respond to environmental changes (Doz & Kosonen, 2010; Weber & Tarba, 2014). Strategic agility enables organizations to leverage technological resources and organizational support to enhance business performance and promptly meet market demands (Teece et al., 2016).

Therefore, this research aimed to examine the relationships among key enablers of remote work in the next normal era, particularly technology support and organizational support—and their influence on firm performance through the mediating role of strategic agility. The research focuses on the Thai organizational context, which may yield distinct insights from Western studies due to differences in cultural norms, technological infrastructure, and work characteristics (Hofstede et al., 2010). In addition, the research provided empirical guidance for Thai business leaders and policymakers in crafting strategic decisions concerning technology investments and remote work policies. A deeper understanding of strategic agility's role will further equip organizations to adapt and thrive in an increasingly volatile and competitive business environment (Budhwar & Varma, 2011).

LITERATURE REVIEW

Technology Support (TS)

Technology support refers to the assistance provided to individuals or organizations in utilizing technology effectively to enhance operational efficiency and resolve technical issues. This includes providing hardware and software consultation, troubleshooting, network management, and remote training to support employees working from different locations (Raghuram et al., 2019). Effective technology support reduces the complexity of problem-solving, ensuring that remote work operates smoothly. Organizations must provide essential tools such as online conferencing systems, cloud-based data access, and digital communication platforms. Additionally, flexible training programs and a strong organizational culture play a crucial role in the success of remote work (Belzunegui-Eraso & Erro-Garcés, 2020). The COVID-19 pandemic further highlighted the significance of technology support, as access to digital resources, specialized software, and IT assistance became crucial for maintaining productivity (Wang et al., 2021). Investments in IT infrastructure and digital tools significantly enhance remote work efficiency, particularly in industries that rely heavily on technology.

Several theories relate to technology support, including the Technology Acceptance Model (TAM), which emphasizes perceived usefulness and ease of use as key factors in technology adoption (Davis, 1989). The Diffusion of Innovation Theory suggests that different user groups adopt technology at varying rates, necessitating tailored support approaches (Rogers, 2003). Knowledge Management theory underscores the importance of systematically collecting and disseminating technology-related knowledge to enhance problem-solving (Nonaka & Takeuchi, 1995). Additionally, Systems Theory views technology support as an integral component within an organizational structure, impacting multiple functions, including training and IT development

(Bertalanffy, 1968). Despite these efforts, challenges such as inadequate IT skills, communication barriers, and limited technical support persist, affecting remote work efficiency (Molino et al., 2020). Addressing these issues requires continuous training, strong leadership, and supportive policies to ensure seamless technology integration in remote work environments (International Labour Organization, 2020).

Research findings reveal varied results when examining how technology support affects organizational performance (H1). Digital tools can enhance remote work capabilities, yet poor implementation or insufficient employee preparation often leads to temporary efficiency declines (Wang et al., 2021). In contrast, technology support demonstrates a clear positive relationship with strategic agility (H3), as it empowers organizations to quickly detect and adapt to environmental shifts through enhanced digital capabilities (Verhoef et al., 2021).

Organizational Support (OS)

Organizational support is a concept explained by the Perceived Organizational Support (POS) theory, which suggests that employees develop their perception of organizational support based on their work experiences. The Organizational Support Theory (OST) is rooted in the Social Exchange Theory, arguing that the relationship between individuals and organizations represents an exchange of mutual benefits (Eisenberger & Stinglhamber, 2011; Blau, 1964). Research has identified several key factors influencing POS, including organizational justice, supervisor support, and human resource practices, which positively affect employees' organizational commitment, job satisfaction, and organizational citizenship behavior (Rhoades & Eisenberger, 2002; Kurtessis et al., 2017). Furthermore, POS has been found to reduce turnover intention and enhance employee engagement through mediating variables such as organizational commitment and moderating factors like organizational justice (Arasanmi & Krishna, 2019; Nazir & Islam, 2017).

In the context of remote work, organizational support plays a crucial role in helping employees adapt and maintain work effectiveness. Effective support encompasses providing appropriate technology, establishing fair performance evaluation systems, facilitating communication, and fostering teamwork, even in remote environments (Errichiello & Pianese, 2021). Research demonstrates that organizations providing adequate support strengthen POS, which leads to positive outcomes including increased job satisfaction, commitment, and performance over time (Dai & Qin, 2016; Obeng et al., 2020). This highlights the importance of designing organizational policies that support employees both in office and remote work settings to promote positive outcomes for both employees and the organization over time.

Research demonstrates a positive connection between organizational support and firm performance (H2). When companies create supportive environments, employees tend to remain more engaged, productive, and committed, especially during periods of organizational change (Caligiuri et al., 2020). Furthermore, organizational support fosters conditions such as psychologically safe environments where employees feel comfortable experimenting and responding to change, which in turn enable strategic agility (Kwon et al., 2020; Weber & Tarba, 2014).

Strategic Agility (SA)

Strategic agility refers to an organization's ability to rapidly adapt to market changes, which is crucial for maintaining competitiveness (Deshati, 2023). Its importance has grown due to the increasingly competitive and unpredictable business environment (Teece, 2018a). Organizations with strategic agility can adapt to market changes, learn quickly, and create opportunities from external changes (Braunscheidel & Suresh, 2009). Human resource management plays a crucial role in fostering strategic agility by developing employees' capabilities essential for business model transformation (Bock et al., 2012). AMO-enhancing HRM practices, which focus on building ability, motivation, and opportunity, can promote transactive memory systems, vital for agile integration during mergers (Tarba et al., 2019). Leadership development is also key, with leaders requiring strategic sensitivity, leadership unity, and resource fluidity to foster agility (Doz, 2020).

In the context of international business, strategic agility is vital for managing relationships between headquarters and foreign subsidiaries and adjusting leadership styles to fit changing business conditions (Bouguerra et al., 2021). Strategic agility involves the ability to innovate and act differently to create new business models. It enables firms to continuously respond to changes by detecting, sensing, and moving strategically in a dynamic environment (Fourné et al., 2014). It also relates to dynamic capabilities, which help integrate and adapt resources to rapidly changing environments, and organizational ambidexterity, which balances exploration and exploitation for strategic agility (Teece et al., 1997; March, 1991). To achieve strategic agility, organizations must develop new business models rather than merely improving existing products, addressing uncertainty, and developing new capabilities (Weber & Tarba, 2014). Strategic agility is not a one-time response but an ongoing capability to adapt and maintain competitive advantage through effective organizational transformation (Weber & Tarba, 2014).

Studies consistently show that strategic agility drives better firm performance (H5). Companies with high strategic agility can quickly identify and capitalize on market opportunities, reallocate resources efficiently, and renew their strategies when facing uncertain conditions (Teece et al., 2016; Sriboonlue et al., 2024a). Strategic agility also acts as an important mediating factor (H6, H7), channeling the indirect benefits of both technology and organizational support toward improved performance by strengthening a company's capacity to adapt, innovate, and remain competitive in constantly changing markets (Yildiz & Aykanat, 2021; Wang et al., 2022).

Firm Performance (FP)

Firm performance is a critical concept in strategic management research, used to assess an organization's success in achieving its business goals (Santos & Brito, 2012). Performance measurement can be both quantitative, such as Return on Assets (ROA), Return on Equity (ROE), and sales volume, and qualitative, such as customer satisfaction and corporate image (Eid & Zaki, 2015; Yildız & Karakaş, 2012). Additionally, effective corporate governance plays a significant role in improving performance by mitigating financial risks and promoting long-term growth (Ehikioya, 2009). Approaches like the Balanced Scorecard, which evaluates financial, customer, internal process, and learning perspectives, provide a comprehensive performance measurement framework (Al-Baidhani, 2014).

In a rapidly changing business environment, factors such as technology, competition, and customer demands significantly influence firm performance (Mammassis & Kostopoulos, 2019). However, relying solely on financial metrics may not provide a full picture of organizational performance (Smith & Bititci, 2017). Therefore, a combination of objective and subjective performance measures, including financial data and managerial perceptions, is essential for accurate and comprehensive evaluation (Dess & Robinson, 1984; Venkatraman & Ramanujam, 1986). Moreover, visual performance management systems can enhance the measurement and management of firm performance (Bititci et al., 2016).

This research treats firm performance as the outcome variable that receives influence through both direct pathways (H1, H2, H5) and indirect routes via strategic agility (H6, H7). Strategic agility plays a particularly crucial mediating role, linking various support systems to performance outcomes and highlighting how adaptability and quick response capabilities drive long-term success in remote and ever-changing business environments (Teece et al., 2016; Sriboonlue et al., 2024a). This framework aligns with Dynamic Capabilities theory, which views performance as the result of skillful resource management and deliberate capability building.

Conceptual Framework and Hypothesis

Based on the review of the literatures on the influence of technology support and organizational support for remote work on firm performance in the next normal era, the conceptual research framework was drawn as shown in Figure 1. In addition, the research hypotheses were drawn in the next part.

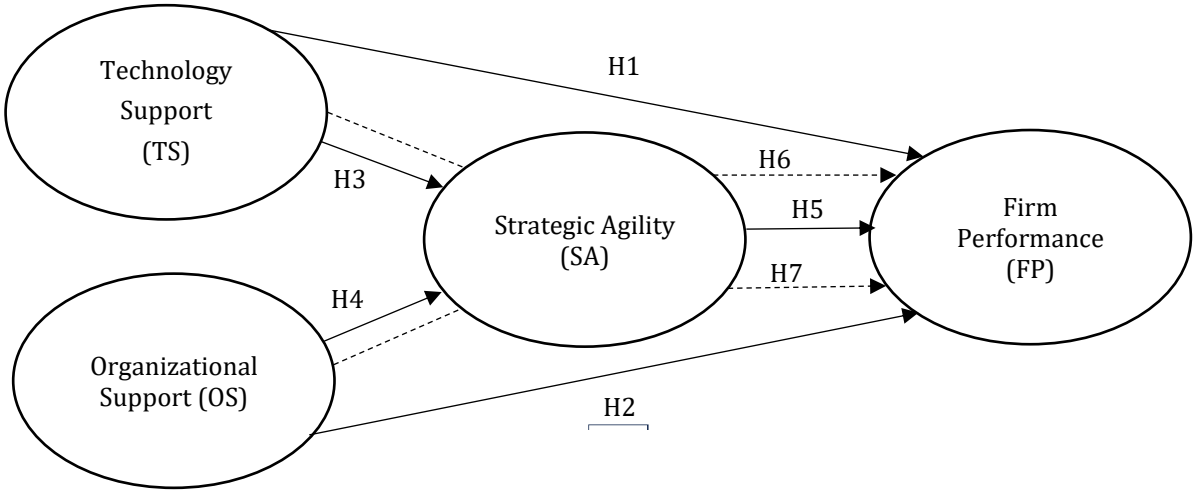

Figure 1 Conceptual Framework

The research hypotheses were drawn as follows:

H1: Technology support has a positive influence on firm performance.

H2: Organizational support has a positive influence on firm performance.

H3: Technology support has a positive influence on strategic agility.

H4: Organizational support has a positive influence on strategic agility.

H5: Strategic agility has a positive influence on firm performance.

H6: Technology support has a positive influence on firm performance through strategic agility.

H7: Organizational support has a positive influence on firm performance through strategic agility.

METHODOLOGY

For Sample and Data Collection

Regarding sample and data collection, the research population consists of employees in private companies located in the Bangkok Metropolitan Region. To estimate the total research population, the overall population for employees in private companies located in the Bangkok Metropolitan Region was used to determine the population size. Employing the basis of sampling formula given by Cochran (1953) for infinite sample size determination with a confidence level of 95% and a margin of error of ±5% eventually yielded a total of 385 participants. However, for structural equation modeling statistics, a minimum sample size of 400 is recommended by Yuan and Bentler (2000). Therefore, additional samples were collected to meet this criterion, resulting in a total sample size of 400 employees. Samples were selected using non-probability sampling with a purposive sampling technique.

The research methodology employed in this research was quantitative research, utilizing the survey method. Data collection was conducted using questionnaires comprising 6 sections. Section 1 collected demographic information including gender, age, marital status, education level, job position, industry sector, tenure, and monthly income. A screening question was included to ensure all participants worked in organizations operating within the Bangkok Metropolitan Region. Sections 2 to 5 consisted of 5-point Likert scale items, measuring variables such as technology support, organizational support, strategic agility, and firm performance. The scale ranged from 1, indicating “strongly disagree,” to 5, indicating “strongly agree.” Section 6 of the questionnaire contained open-ended questions for those who wished to provide additional comments.

The technology support scale was adapted from Coles et al. (2021), organizational support items were based on Sriboonlue et al. (2024b), strategic agility measures were adapted from Hock et al. (2016), and firm performance items were derived from Clauss et al. (2019) and Sriboonlue et al. (2024a).

Sample items included: Technology support – "Your organization provides necessary technological equipment for remote work"; Organizational support – "Your company supports employees to receive technology-related training"; Strategic agility – "Your company can respond quickly to external changes"; Firm performance – "Your company's customer retention rate is at a high level."

Content validity was assessed by three experts, and all items yielded an Index of Item-Objective Congruence (IOC) above 0.80. A try-out with 30 respondents yielded Cronbach's alpha coefficients between 0.900 and 0.950, confirming high reliability. The total reliability coefficient for the overall questionnaire was 0.966. Data collection used online questionnaires (Google Forms), resulting in 400 usable responses after data screening and cleaning procedures.

Descriptive statistics used in quantitative data analysis included frequency, percentage, mean, and standard deviation. For hypothesis testing, inferential statistics were employed, specifically Pearson's Product Moment Correlation Coefficient and Partial Least Squares-Structural Equation Modeling (PLS-SEM).

PLS-SEM analysis was conducted using SmartPLS 4.0 software. The measurement model evaluation included assessment of item reliability (factor loadings > 0.7), construct reliability using Cronbach's alpha and composite reliability (> 0.8), convergent validity through average variance extracted (AVE > 0.5), and discriminant validity using the Fornell-Larcker criterion. Model fit was evaluated using standardized root mean square residual (SRMR) and normed fit index (NFI). Mediation analysis was performed using the bootstrapping procedure with 5,000 bootstrap samples to test indirect effects. The significance of mediation pathways was determined by examining confidence intervals, with mediation considered significant if the 95% confidence interval did not include zero, following the approach recommended by Hair et al. (2013).

RESULTS

The results of the research showed that most of the respondents were female (51%), aged between 36–42 years old (51%), and obtained a bachelor's degree (65%). Most of the respondents had careers as managers (25%), followed by administrative officers (24%) and department heads (23%), respectively. The majority of the respondents also worked in the media and publishing industry (24%), followed by the financial and investment industry (19%) and the information and communication technology industry (19%). The descriptive analysis revealed that respondents generally expressed agreement with statements related to technology support, organizational support, strategic agility, and firm performance. All variables received mean scores above 4.10 on a 5-point scale, indicating favorable perceptions across constructs. These results suggest that respondents viewed their organizations as reasonably well-equipped to support remote work and adapt strategically during the next normal era, as depicted in Table 1.

Table 1. Mean and standard deviation for variables

Latent Variable	Mean	Standard Deviation	Agreement Level
Technology Support (TS)	4.14	1.08	Agree
Organizational Support (OS)	4.18	1.07	Agree
Strategic Agility (SA)	4.11	1.08	Agree
Firm Performance (FP)	4.18	0.97	Agree

Validity and Reliability

Cronbach's alpha and composite reliability were investigated to measure construct reliability. All factor loading values ranged from 0.820 to 0.902, which is exceeded the recommended value of 0.50, but TS1, TS8, OS1, SA1, FP1, FP4, and FP5 were dropped from the scale after measurement purification since the factor loading values were below 0.5; hence, the constructs in the research model are acceptable (Bagozzi & Yi, 1988). Cronbach's alpha coefficient of each construct ranged from 0.898 to 0.936, meaning that all constructs are acceptable according to the recommended

threshold value of 0.70 (Fornell & Larcker, 1981). Similarly, in terms of composite reliability, all values ranged from 0.929 to 0.949, further supporting construct reliability (Hair et al., 2013). In addition, the average variance extracted (AVE) values ranged from 0.731 to 0.787, which exceeded the minimum threshold value of 0.50, thereby confirming convergent validity as shown in Table 2.

Table 2. Factor loading, Cronbach's alpha coefficient (CA), composite reliability (CR) and average variance extracted (AVE) for measurement model

Latent Variable	CA	CR	AVE	Indicators	Loads
Technology Support (TS)	0.936	0.949	0.758	TS2	0.874
				TS3	0.871
				TS4	0.893
				TS5	0.875
				TS6	0.887
				TS7	0.820
Organizational Support (OS)	0.898	0.929	0.766	OS2	0.872
				OS3	0.865
				OS4	0.872
				OS5	0.891
Strategic Agility (SA)	0.932	0.949	0.787	SA2	0.902
				SA3	0.877
				SA4	0.902
				SA5	0.863
				SA6	0.891
Firm Performance (FP)	0.908	0.931	0.731	FP2	0.871
				FP3	0.855
				FP6	0.861
				FP7	0.821
				FP8	0.865

Note: Items TS1, TS8, OS1, SA1, FP1, FP4, and FP5 were dropped from the scale after measurement purification.

Table 3. Discriminant Validity

Variables	Technology Support	Organizational Support	Strategic Agility	Firm Performance
Technology Support	0.870			
Organizational Support	0.907	0.875		
Strategic Agility	0.900	0.923	0.887	
Firm Performance	0.795	0.882	0.873	0.855

Note: The value in main diagonal were square roots of AVE.

For discriminant validity, as presented in Table 3, the square roots of AVEs (i.e., the diagonal values ranging from 0.855 to 0.887) exceeded the recommended threshold of 0.50 and were greater than the corresponding inter-construct correlations, indicating sufficient discriminant validity (Fornell & Larcker, 1981). Additional assessment using the Heterotrait-Monotrait (HTMT) ratio criterion was conducted to comprehensively evaluate discriminant validity. The HTMT analysis yielded values below the conservative threshold of 0.85, thus confirming adequate discriminant validity among all constructs (Henseler et al., 2015).

Analysis of Structural Model and Hypothesis Testing

From the structural model in this research, the direct effects indicated that the R^2 value of the dependent variable, firm performance (FP), was 0.807 indicating that 80.7% of firm performance

variance was explained by the independent variables. For the indirect effects, the R^2 value of the mediating variable, strategic agility (SA), was 0.874.

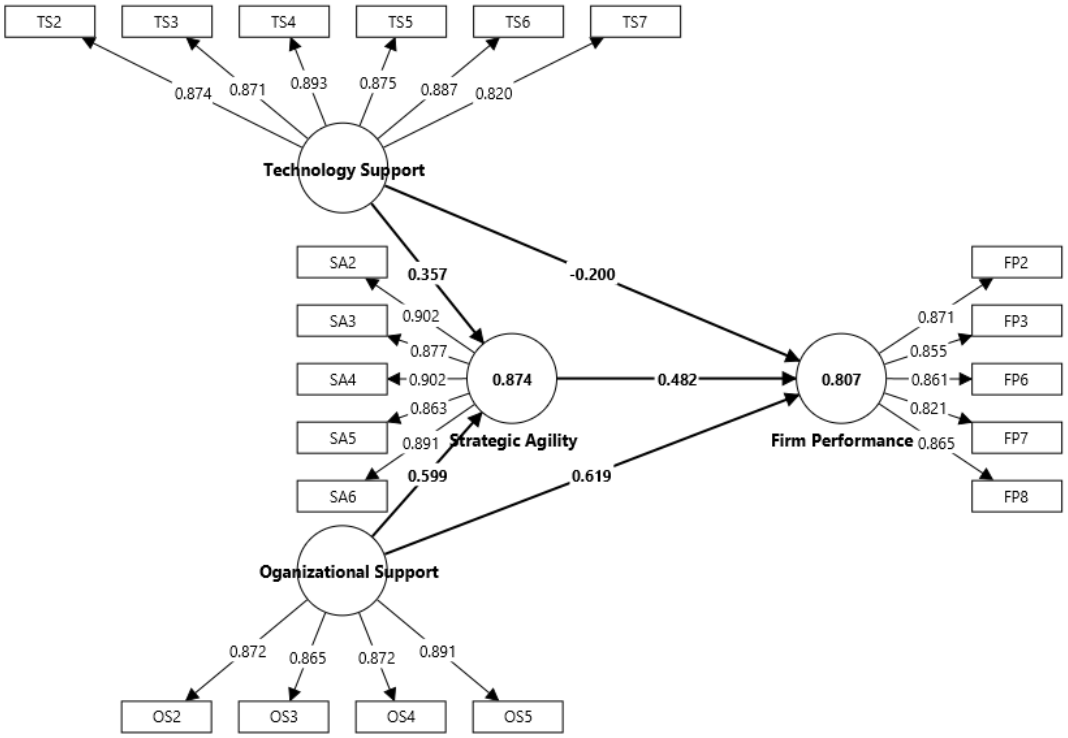

Figure 2. The results of testing the structural model of the theoretical framework

Table 4. Structural Model

Hypothesis	β	t statistics	*p*-value
H1: TS → FP	-0.200	1.961	.050*
H2: OS → FP	0.619	6.434	.000***
H3: TS → SA	0.357	5.377	.000***
H4: OS→ SA	0.599	9.229	.000***
H5: SA → FP	0.482	4.508	.000***
H6: TS → SA → FP	0.172	2.946	.003**
H7: OS → SA → FP	0.288	4.649	.000***

Note: * $p < .05$; ** $p < .01$; *** $p < .001$ (two-tailed test)

Table 5. Total Effect

Items	SA	FP
TS	0.357	-0.028
OS	0.599	0.907
SA	-	0.482

Table 6. Direct Effect

Items	SA	FP
TS	0.357	-0.200
OS	0.599	0.619
SA	-	0.482

Table 7. Indirect Effect

Items	FP
TS	0.172
OS	0.288

The results of hypothesis testing revealed that technology support (TS) had a direct negative and significant influence on firm performance (FP) (β = -0.200, $p < .05$), thus Hypothesis 1. was partially supported as the relationship was significant but in the opposite direction from that hypothesized. Organizational support (OS) had a direct positive and significant influence on firm performance (FP) (β = 0.619, $p < .001$), supporting Hypothesis 2. In addition, technology support (TS) had a direct positive and significant influence on strategic agility (SA) (β = 0.357, $p < .001$), supporting Hypothesis 3. Similarly, organizational support (OS) had a direct positive and significant influence on strategic agility (SA) (β = 0.599, $p < .001$), supporting Hypothesis 4. Strategic agility (SA) had a direct positive and significant influence on firm performance (β = 0.482, $p < .001$), supporting Hypothesis 5.

For the indirect effects, both technology support (TS) (β = 0.172, $p < .01$) and organizational support (OS) (β = 0.288, $p < .001$) significantly influenced firm performance (FP) through strategic agility (SA), thus supporting Hypotheses 6 and 7 respectively. Analysis of total effects revealed that organizational support had the strongest overall impact on firm performance (β = 0.907, $p < .001$), while the total effect of technology support on firm performance was not significant (β = -0.028, $p > .05$), indicating that its positive indirect effect through strategic agility was offset by its negative direct effect.

DISCUSSION AND IMPLICATIONS

This research investigated the complex relationships between technology support and organizational support on firm performance in the context of remote work during the next normal era, with strategic agility serving as a mediating variable. The empirical findings revealed intricate relationships among these variables, providing valuable insights for both academic understanding and practical application.

Contrary to initial expectations, technology support demonstrated a significant negative direct effect on firm performance. This finding diverges from Wang et al.'s (2021) assertion that technological investments directly translate to operational efficiencies. For instance, newly implemented remote communication platforms may initially disrupt workflows due to steep learning curves or lack of integration with existing systems. Additionally, overreliance on digital monitoring tools can reduce employee autonomy, leading to decreased motivation and short-term performance drops. This discrepancy may be explained through several perspectives: First, technological tools without proper integration into organizational processes may create implementation barriers that hinder their effective use and strategic alignment (Madaki et al., 2024). Second, this view aligns with socio-technical systems theory, which posits that optimal organizational performance results from the effective integration of technical and social subsystems, rather than relying on technological sophistication alone (Appelbaum, 1997). Third, there might be a time lag between technological adoption and performance improvements, as suggested by productivity paradox literature (Brynjolfsson & Hitt, 1998).

In contrast, the analysis revealed that organizational support has a substantial positive direct effect on firm performance, consistent with previous research by Caligiuri et al. (2020), who emphasized that organizations with comprehensive support systems during transitions to remote work environments maintain superior performance. When employees perceive robust organizational support, they develop increased organizational commitment and enhanced well-being (Eisenberger et al., 2020), leading to enhanced work engagement despite remote work challenges. Furthermore, organizational support typically includes clear communication channels, well-defined expectations, and accessible resources that enable employees to maintain productivity despite physical separation from traditional workplace environments.

The results demonstrated that both technology support and organizational support significantly influence strategic agility. The positive relationship between technology support and strategic agility corresponds with Verhoef et al.'s (2021) findings that flexible technological infrastructures enhance organizational responsiveness. Similarly, the strong influence of organizational support on strategic agility aligned with Kwon et al. (2018), highlighting how supportive organizational policies foster adaptive capacities by creating psychologically safe environments for experimentation and innovation. This relationship is further supported by Weber and Tarba's (2014) assertion that supportive organizational structures create the psychological safety necessary for rapid adaptation and experimentation, particularly crucial in remote work contexts where traditional coordination mechanisms are disrupted.

The research results also indicated that strategic agility enhances firm performance, aligning with Teece et al. (2016), who argue that agile organizations gain competitive advantages through superior market responsiveness. This is further supported by Sriboonlue et al. (2024a), revealing that strategic agility strengthens operational responsiveness, driving firm success in various sectors. This capability is crucial in the VUCA era, where firms must swiftly sense changes, allocate resources efficiently, and adapt strategies to maintain performance during disruptions (Deshati, 2023).

The analysis of indirect effects revealed particularly interesting insights. While technology support demonstrates a negative direct effect on performance, it exhibits a substantial and significant indirect effect when mediated by strategic agility. This finding aligns with research by Wang et al. (2022) emphasizing the importance of dynamic capability development alongside digital transformation initiatives. The indirect effect of technology support on firm performance through strategic agility demonstrates how technological infrastructure contributes to organizational performance by enhancing adaptive capabilities.

Similarly, organizational support exerts a significant indirect effect on firm performance through strategic agility, corroborating findings that support systems enhance performance by fostering organizational agility, which enables effective response to environmental volatility (Yildiz & Aykanat, 2021). These findings align with Dynamic Capabilities theory (Teece, 2018b), which emphasizes that organization-level capabilities mediate the relationship between resources and performance outcomes. This suggests that organizations should view support systems not merely as operational necessities but as strategic investments in building adaptive capabilities.

The structural model results yielded exceptionally high explanatory power, with the R^2 values of 0.807 for firm performance and 0.874 for strategic agility, indicating that the theoretical framework comprehensively captures the key factors influencing both constructs in remote work environments. Examination of total effects provided a comprehensive understanding of variable relationships. Organizational support demonstrated the highest total effect on firm performance ($\beta = 0.907$, $p < .001$), aligning with metanalytic research by Rhoades and Eisenberger (2002), which established robust connections between perceived organizational support and multiple performance indicators. Conversely, the total effect of technology support on firm performance was not statistically significant ($\beta = -0.028$, $p = 0.760$), indicating that the negative direct effect was offset by the positive indirect effect through strategic agility. This explains why some organizations fail to realize performance benefits despite substantial technology investments.

These findings contribute to both theory and practice by elucidating the complex interplay between support systems, dynamic capabilities, and performance outcomes in contemporary work environments. The results highlight the critical role of strategic agility as a mediating mechanism through which both technology and organizational support influence firm performance, emphasizing the importance of developing adaptive capabilities alongside implementing support systems.

LIMITATIONS AND FUTURE RESEARCH POSSIBILITIES

While the results provided valuable insights into the influences of organizational support (OS), strategic agility (SA), and technology support (TS) on firm performance (FP), certain limitations should be acknowledged. The research relied on quantitative data, which may have limited the

understanding of deeper contextual factors that could influence these relationships. Future research could adopt qualitative methods or mixed methods to explore the nuanced dynamics between technology support and firm performance more comprehensively (Venkatesh et al., 2013; Creswell et al., 2017). Furthermore, the sample used in this research may not have fully captured the diversity of industries, which limits the generalizability of the findings. Future research should consider cross-industry analyses to better understand the varying impacts of technology support across different sectors (Porter & Heppelmann, 2014).

In addition, this research revealed a noteworthy adverse direct impact of technology support on firm performance, which necessitates further investigation to determine the underlying causes. Potential factors such as implementation challenges, employee resistance, or inefficient resource allocation should be examined in future research (Johnson et al., 2020). Lastly, the scope of this research was limited to immediate performance outcomes. Future research should explore long-term effects to assess whether initial negative impacts of technology support can be mitigated through adaptation and strategic integration (Ross et al., 2019).

CONCLUSION

This research highlighted the complex interplay between organizational support, strategic agility, and technology support in shaping firm performance. The findings indicated that while organizational support and strategic agility positively influenced firm performance, technology support initially exerted a negative effect. However, indirect effects suggested that technology support could still enhance performance when mediated by other factors such as strategic agility. These findings underscore the critical importance of strategic planning and agile leadership when integrating technological solutions into business operations. While organizational support directly enhances performance, technology support may require complementary capabilities—such as strategic agility—to fully realize its benefits. To remain competitive in the next normal era, firms must invest not only in digital tools but also in dynamic capabilities that enable rapid adaptation, innovation, and employee empowerment. When viewed collectively, these findings create a coherent story that bridges theoretical understanding with practical management applications. Companies facing uncertainty and digital transformation find that strategic agility serves as a critical mechanism for converting support structures into lasting performance gains. The research illuminates how internal capabilities need to develop alongside technological investments to achieve meaningful outcomes, providing valuable insights for both scholars and practitioners seeking to understand how work continues to evolve. Future research should continue to explore how these interrelated factors evolve over time and across sectors.

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CONFLICTS OF INTEREST

The authors declare that there are no conflicts of interest found in this research.

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THE INFLUENCE OF TOXIC WORKPLACE BEHAVIOR ON TURNOVER INTENTION AMONG GENERATION Z EMPLOYEES: THE MEDIATING ROLE OF PERCEIVED PSYCHOLOGICAL SAFETY

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ABSTRACT

Purpose – The purpose of this research was to study the influence of toxic workplace behavior, focusing on toxic leadership and workplace incivility, on the turnover intention of Generation Z employees through perceived psychological safety in the workplace.

Methodology – The research methodology was quantitative with survey method using questionnaires for data collection. The respondents were 400 participants who are Generation Z full-time employees living in the Bangkok Metropolitan Region. Descriptive statistics used for data analysis included frequency, percentage, mean, and standard deviation. Due to hypothesis testing, inferential statistics were used, specifically Pearson's Product Moment Correlation Coefficient and Partial Least Squares-Structural Equation Modeling (PLS-SEM).

Results – The research results indicated that toxic leadership and workplace incivility had a positive and significant effect on turnover intention at a significance level of 0.05. In addition, perceived psychological safety had a significant negative effect on turnover intention at a significance level of 0.001, confirming its role in mitigating employee turnover. The results also revealed that both toxic leadership and workplace incivility significantly reduced perceived psychological safety at a significance level of 0.001. Moreover, the mediation analysis demonstrated that these toxic workplace behaviors indirectly increased turnover intention by reducing perceived psychological safety, also at a significance level of 0.001.

Implications – The findings suggest organizations should prioritize psychological safety to reduce turnover among Generation Z employees by implementing supportive leadership behaviors, comprehensive training programs, and clear policies addressing toxic behaviors. Organizations must recognize that younger generations have lower tolerance for violations of personal rights and freedoms, requiring adaptations to management practices.

Originality/Value – This research revealed how toxic leadership and workplace incivility affect Generation Z employees' turnover intentions through perceived psychological safety. By examining generational differences in workplace expectations, the research provided guidance for organizations to develop leadership practices and workplace cultures that align with younger workers' needs, supporting long-term organizational sustainability.

Keywords: Toxic workplace, Turnover intention, Toxic leadership, Workplace incivility, Perceived psychological safety, Generation Z

Paper Type: Research Article

INTRODUCTION

In the modern era of rapid social and technological change, organizations face significant challenges in human resource management, particularly in attracting and retaining Generation Z

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employees. The importance of managing Generation Z employees in a rapidly changing workplace cannot be overstated, as the growing importance of human capital in gaining a competitive advantage has led modern organizations to focus on retaining skilled employees, with a particular emphasis on the younger workforce. Moreover, the intense competition in the labor market and the fast-paced evolution of technology exert pressure on organizations to develop and retain high-potential employees (Deloitte, 2021).

At the same time, organizations must balance the needs of new-generation employees with those of other generations, making human resource management an increasingly complex challenge. Effective human resource management involves both attracting talent to the organization and ensuring employee retention. A key strategy in achieving this is mitigating factors that contribute to employees' decisions to leave. One such critical factor is toxic workplace behavior, which significantly influences job satisfaction and turnover intention.

A toxic work environment not only affects employee satisfaction and productivity but also directly impacts employees' perceived psychological safety. This can lead to negative emotional states such as stress and pressure, resulting in increased absenteeism as employees seek to escape unfavorable work conditions. Ultimately, this may lead to higher turnover intention and actual employee attrition (Rasool et al., 2020).

This research aimed to examine the influence of toxic workplace behavior on the turnover intention of Generation Z employees, with perceived psychological safety acting as a mediating variable. The research aimed to study how toxic leadership and workplace incivility directly affect employee turnover intentions while investigating psychological safety as a potential mediator and developing recommendations for organizations to retain Generation Z employees. This research fills a knowledge gap about toxic workplace behaviors affecting younger Thai workers because it studies their impact in the Bangkok Metropolitan Region which contains most major organizations and shows the most significant workforce demographic changes.

Since Generation Z is emerging as a dominant workforce in the future, understanding the factors influencing their turnover intention is essential for organizations to develop effective human resource management strategies and reduce employee turnover. The findings of this study will contribute to building a work environment that fosters psychological safety and reduces toxic behaviors, enabling organizations to retain high-potential employees in the long run. The research adds theoretical value by showing how workplace behaviors impact Generation Z differently than previous generations while providing Thai organizations with practical guidance to create policies that meet the needs of younger workers.

LITERATURE REVIEW

Toxic Workplace Behaviors

Toxic workplace behaviors consist of toxic leadership and workplace incivility as follows:

Toxic Leadership (TL)

Toxic leadership refers to leadership behaviors and management approaches deemed inappropriate, negatively affecting both organizations and employees. Such behaviors foster unsupportive work environments and impede progress, ultimately compromising overall organizational effectiveness (Paltu & Brouwers, 2020).

Recent research has reinforced the link between toxic leadership and employee commitment and turnover intention. Earlier studies by Schmidt (2008) and Mehta and Maheshwari (2014) explored toxic leadership's direct impact on employee commitment and turnover intention, supporting the notion that oppressive behaviors, destructive communication, and excessive control significantly diminish employee trust and elevate turnover intentions. Building on this, more recent research highlights that toxic leadership contributes to cognitive distraction, workplace bullying, and emotional exhaustion, further intensifying turnover intentions (Shrivastava & Sharma, 2024). Toxic leadership has also been found to diminish psychological well-being and employee engagement, key factors in job retention (Naeem & Khurram, 2020).

Employees experiencing toxic leadership commonly feel insecure and demotivated. While Generation Y previously tolerated such behaviors due to different societal norms, Generation Z perceives them as violations of their rights and freedoms, particularly regarding unpaid overtime or working during holidays. Research suggests that toxic leadership not only increases turnover intention but also affects job satisfaction and organizational commitment, making Generation Z employees more likely to leave toxic environments (Buyukyilmaz & Kara, 2024). Consequently, conflicts arising from these differing values may lead to increased turnover among Generation Z employees.

Research has shown a positive relationship between toxic leadership and turnover intention in different settings (Shrivastava & Sharma, 2024; Naeem & Khurram, 2020), and it has been found that Generation Z employees are more sensitive to toxic leadership than previous generations, making this relationship particularly important for contemporary workforce management (Buyukyilmaz & Kara, 2024).

Workplace Incivility (WI)

Workplace incivility refers to low-intensity deviant behaviors that violate professional norms of mutual respect, negatively affecting both employees and organizational performance. Such behaviors foster hostile work environments and disrupt workplace harmony, ultimately compromising employee well-being and retention (Permatasari & Sugito, 2025).

Recent research has reinforced the link between workplace incivility and turnover intentions. Earlier studies by Porath and Pearson (2012) and Manzoor et al. (2020) explored the direct impact of incivility on employee well-being and turnover intentions, supporting the notion that disrespectful communication, social exclusion, and a lack of recognition significantly increase stress and reduce organizational commitment. Building on this, more recent research highlights that workplace incivility contributes to job dissatisfaction, psychological distress, and workplace disengagement, further intensifying turnover intentions (Permatasari & Sugito, 2025). WI has also been found to increase organizational cynicism, diminish cooperation, and lower employee morale, key factors in employee attrition and reduced productivity (Manzoor et al., 2020).

Employees experiencing workplace incivility commonly feel undervalued, disengaged, and hesitant to communicate openly. While previous generations of employees may have perceived such behaviors as routine workplace challenges, younger generations view them as violations of their professional dignity and expectations for a respectful work culture, particularly regarding collaborative engagement and fair treatment. Research suggests that workplace incivility not only increases turnover intention but also undermines job satisfaction and team cohesion, making employees more inclined to leave toxic environments (Porath & Pearson, 2012). Consequently, conflicts arising from differing expectations regarding workplace behavior may lead to higher turnover rates among modern professionals, necessitating organizational strategies to foster inclusive and respectful workplace interactions. Research shows a consistent positive relationship between workplace incivility and turnover intention (Manzoor et al., 2020; Rahim & Cosby, 2016), with several studies showing that even low-intensity uncivil behaviors can significantly increase employees' intentions to leave their organizations, especially among Generation Z workers who typically value respectful workplace interactions (Permatasari & Sugito, 2025).

Perceived Psychological Safety (PPS)

Edmondson (1999) defined psychological safety as an individual's perception of workplace interpersonal safety, where they can express opinions without fear of negative consequences like embarrassment or criticism. The concept differs from other related constructs including trust and job security because it specifically deals with interpersonal risk-taking within the work environment which enables team members to express themselves without fear of negative consequences (Edmondson, 1999). Employees feeling psychologically safe believe their actions won't result in adverse personal consequences. Psychological safety drives organizational success through open communication, innovation, and trust. Research shows psychologically safe environments are vital for employee well-being and organizational effectiveness, encouraging

free expression that increases creativity and problem-solving (Forte et al., 2024; Negara et al., 2023). It also correlates with higher job satisfaction and reduced stress, improving overall performance (Amoadu et al., 2024; Harsha et al., 2024).

Leadership significantly influences psychological safety. Yin et al. (2022) demonstrated that supportive leaders create environments where employees express themselves freely, enhancing openness and creativity. Team leaders using cooperative conflict management styles positively affect team innovation through psychological safety mediation (Yin et al., 2022).

Workplace incivility undermines psychological safety. Negative behaviors affect perceptions of fairness and respect. Research found workplace rudeness impairs performance, reducing medical team functionality by 44% (New York Post, 2024). Incivility compromises psychological safety, causing emotional distress, anxiety, reduced satisfaction, and increased turnover intentions.

Wang (2022) found strong coworker relationships correlate positively with psychological safety. Employees perceiving high psychological safety engage positively, collaborate effectively, and experience greater job satisfaction, reducing turnover intentions. This study showed psychological safety fosters workplace friendships and stronger relationships, enhancing organizational commitment.

Psychological safety mediates between toxic leadership, incivility, and turnover intention. When compromised, employees fear criticism and repercussions, increasing stress and driving them to seek healthier environments (Frazier et al., 2017). A meta-analysis from the study confirmed psychological safety mediates between antecedents like leadership behavior and outcomes including turnover intention. Therefore, organizations should prioritize supportive leadership, respectful cultures, and comprehensive employee support systems to foster psychological safety, enhancing retention and effectiveness, particularly among Generation Z employees.

Turnover Intention (TI)

Turnover intention refers to the process in which employees contemplate and plan to leave their organization, negatively impacting workforce stability and talent retention. This behavior leads to a disengaged work environment, operational discontinuity, and reduced long-term organizational efficiency (Sundari, et al., 2023). Employees often consider leaving due to psychological exhaustion, job insecurity, workload stress, and work-life imbalance, making turnover intention a key indicator of job satisfaction and organizational commitment. This issue is particularly prevalent among Generation Z employees, who exhibit higher job mobility than previous generations and prioritize psychological safety and supportive work cultures.

Recent studies have reinforced the link between work stress, psychological safety, and turnover intention. Earlier research by Fong and Mahfar (2013), Nohe and Sonntag (2014), Billing et al. (2014) and Rode et al. (2007) highlighted that job dissatisfaction and workplace stress are primary factors contributing to higher turnover rates. Furthermore, recent findings indicate that psychological stress, particularly emotional exhaustion and burnout, mediates the relationship between workplace stressors and turnover intention . Additionally, toxic leadership has been found to increase employees' turnover intention due to breaches in psychological contracts and negative workplace experiences (Mehta & Maheshwari, 2013; Wolor et al., 2020).

Psychological safety has emerged as a crucial factor in reducing employees' turnover intention, particularly in high-stress environments such as healthcare industries. Research by Hebles et al. (2022) found that psychological safety mediates the relationship between cognitive stress and turnover intention, indicating that employees who perceive a safe and supportive work environment are less likely to consider leaving. When employees experience psychological safety, they report lower stress levels, increased organizational commitment, and greater willingness to engage in workplace problem-solving.

Moreover, employees who lack psychological safety often feel undervalued, disengaged, and hesitant to voice concerns or express their opinions. Research by Frazier et al. (2017) further confirms that psychological safety not only reduces turnover intention but also enhances job satisfaction, organizational commitment, and workplace trust. In addition, a work environment

where employees feel safe to express their opinions fosters stronger workplace relationships, leading to higher trust levels, improved team collaboration, and reduced workplace stress.

Conceptual Framework and Hypothesis

Based on the review of the literatures on toxic leadership, workplace incivility, perceived psychological safety, and turnover intension, the conceptual research framework was drawn in Figure 1. In addition, the research hypotheses were drawn in the next part.

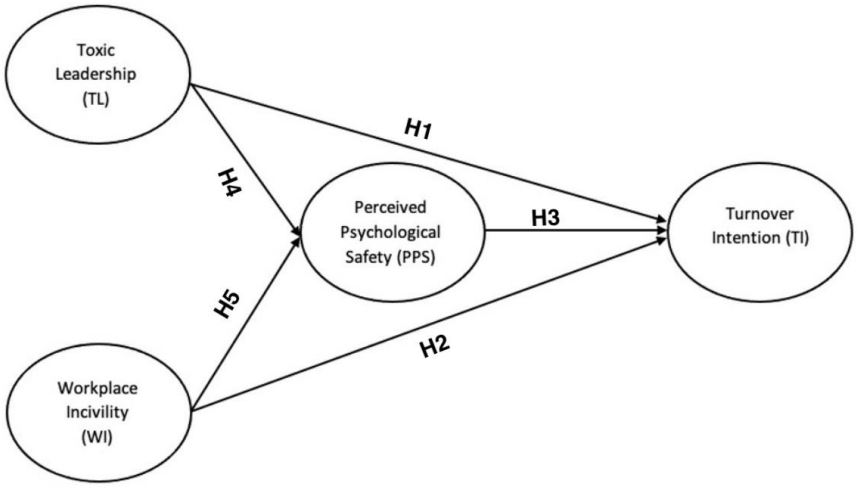

Figure 1. Conceptual Framework

The research hypotheses were drawn as follows:

Hypothesis 1 (H1): Toxic leadership has a significant influence on the turnover intention of Generation Z employees.

Hypothesis 2 (H2): Workplace incivility has a significant influence on the turnover intention of Generation Z employees.

Hypothesis 3 (H3): Perceived psychological safety has a significant influence on the turnover intention of Generation Z employees.

Hypothesis 4 (H4): Toxic leadership has a significant influence on the perceived psychological safety of Generation Z employees.

Hypothesis 5 (H5): Workplace incivility has a significant influence on the perceived psychological safety of Generation Z employees.

Hypothesis 6 (H6): Toxic leadership indirectly influences the turnover intention of Generation Z employees through perceived psychological safety.

Hypothesis 7 (H7): Workplace incivility indirectly influences the turnover intention of Generation Z employees through perceived psychological safety.

METHODOLOGY

For Sample and Data Collection

The research population consisted of Generation Z employees who were born between 1995-2012 and aged between 22-29 years old in the Bangkok Metropolitan Region. The exact population size was unknown so Cochran's (1953) formula was used to determine the sample size at 95% confidence level which resulted in a required sample of 385 participants. The recommended minimum sample size for structural equation modeling (Yuan & Bentler, 2000; Savalei & Bentler, 2005) was used to recruit a total of 400 participants. Non-probability sampling with purposive sampling technique was used to select participants who had workplace experience in the specified region. Screening questions were used to ensure that participants met the inclusion criteria.

The research methodology employed in this research was quantitative research, utilizing the survey method for data collection. The data were collected through questionnaires

comprising six sections. Section 1 of the questionnaire included closed-ended questions focusing on demographic information, such as age (which served as a screening criterion to ensure respondents belonged to Generation Z), gender, education level, work experience, occupation, and monthly income. The section also included a screening question to confirm that participants worked in organizations operating within the Bangkok Metropolitan Region. These variables provided essential background information to support further statistical analysis.

Section 2-3 contained 5-point Likert scale items measuring toxic leadership and workplace incivility, with the scale ranging from 1 ("strongly disagree") to 5 ("strongly agree"). The measures were adapted from established scales (Tepper, 2000; Özer et al., 2017; Cortina et al., 2001; Andersson & Pearson, 1999). Section 4 measured perceived psychological safety using a 5-point Likert scale that was reverse-coded to align with the directional interpretation of other variables in the PLS-SEM analysis. The scale was adapted from the studies by Carmeli et al. (2010) and Edmondson (1999). After reverse coding (using the formula: New Score = 6 - Original Score), higher values indicate lower psychological safety, meaning a greater sense of insecurity. Section 5 assessed turnover intention using 5-point Likert scale items ranging from 1 ("strongly disagree") to 5 ("strongly agree"). This transformation of the psychological safety scale facilitates a more consistent interpretation of the results across all variables in the research, as higher scores for all variables now represent more negative effects (i.e., higher toxic leadership, higher workplace incivility, lower psychological safety, and higher turnover intention). Section 6 of the questionnaire contained opened-ended questions for those who wish to provide additional comments.

Descriptive statistics used in quantitative data analysis included frequency, percentage, mean, and standard deviation. Mean scores were interpreted using standard criteria (1.00-1.80 = strongly disagree to 4.21-5.00 = strongly agree). Due to hypothesis testing, inferential statistics were used, specifically Pearson's Product Moment Correlation Coefficient and Partial Least Squares-Structural Equation Modeling (PLS-SEM).

RESULTS

The results of the research showed that most of respondents were female (52%), had age range between 24-26 years old (50%), obtained a bachelor's degree (100%), had career as employees of private companies (50%), and had work experience for less than 1 year (43%), for travel approximately 1-2 times per year (43%), and earned monthly income between 15,000 - 25,000 THB (46%). The research results showed that the respondents had an overall agreement toward toxic leadership, workplace incivility, perceived psychological safety and turnover intention at the agree level, with mean scores of 3.87, 3.74, 3.68 and 3.43 respectively, as depicted in Table 1.

Table 1. Mean and Standard Deviation for Variables

Latent Variable	Mean	Standard Deviation	Agreement Level
Toxic Leadership (TL)	3.87	1.16	Agree
Workplace Incivility (WI)	3.74	1.14	Agree
Perceived Psychological Safety (PPS)	3.68	1.13	Agree
Turnover Intention (TI)	3.43	1.26	Agree

Validity and Reliability

Cronbach's alpha and composite reliability were investigated to measure construct reliability. All factor loading values ranged from 0.702 to 0.852, which is more than the recommended value of 0.50, but WI7, WI9, TI4, and TI5 were dropped from the scale after measurement purification since the factor loading values were below 0.5; hence, the constructs in the research model are acceptable (Bagozzi & Yi, 1988). Cronbach's alpha coefficient of each construct ranged from 0.839 to 0.928, meaning that all constructs are acceptable according to the recommended threshold value of 0.70 (Fornell & Larcker, 1981). Similarly, in terms of composite reliability, all values

ranged from 0.882 to 0.940, further supporting construct reliability (Hair et al., 2013). In addition, the average variance extracted (AVE) values ranged from 0.555 to 0.636, which exceeded the minimum threshold value of 0.50, thereby confirming convergent validity as shown in Table 2.

Table 2. Factor Loading, Cronbach's Alpha Coefficient (CA), Composite Reliability (CR) and Average variance extracted (AVE) for Measurement Model

Latent Variable	CA	CR	AVE	Indicators	Loads
Toxic Leadership (TL)	0.928	0.940	0.636	TL1	0.835
				TL2	0.852
				TL 3	0.815
				TL 4	0.820
				TL 5	0.817
				TL 6	0.737
				TL 7	0.774
				TL 8	0.752
				TL 9	0.769
Workplace Incivility (WI)	0.866	0.900	0.600	WI1	0.766
				WI2	0.765
				WI3	0.833
				WI4	0.791
				WI5	0.761
				WI8	0.731
Perceived Psychological Safety (PPS)	0.880	0.907	0.581	PPS1	0.783
				PPS2	0.736
				PPS3	0.717
				PPS4	0.779
				PPS5	0.785
				PPS6	0.765
				PPS7	0.771
Turnover Intention (TI)	0.839	0.882	0.555	TI1	0.702
				TI2	0.738
				TI3	0.837
				TI6	0.746
				TI7	0.730
				TI8	0.711

Notes: Items WI7, WI9, TI4 and TI5 were dropped from the scale after measurement purification.

Table 3. Discriminant Validity

Variables	Toxic Leadership	Workplace Incivility	Perceived Psychological Safety	Turnover Intention
Toxic Leadership	0.798			
Workplace Incivility	0.740	0.775		
Perceived Psychological Safety	0.746	0.736	0.763	
Turnover Intention	0.633	0.635	0.731	0.745

In Table 3, the discriminant validity was tested, and the square roots of AVEs exceeded the minimum threshold of 0.50, and all values were higher than the correlations among the latent constructs (ranging from 0.633 to 0.746), confirming discriminant validity (Henseler et al., 2015).

Analysis of Structural Model

From the structural model in this research, the direct effects indicated that the R^2 value of the dependent variable, or turnover intention was 0.631 indicating that 63.1% of employees' turnover intention could be explained by the independent variables, toxic leadership and workplace incivility. For the indirect effects, the R^2 of the mediating variables showed that R^2 perceived psychological safety (PPS) was 0.561.

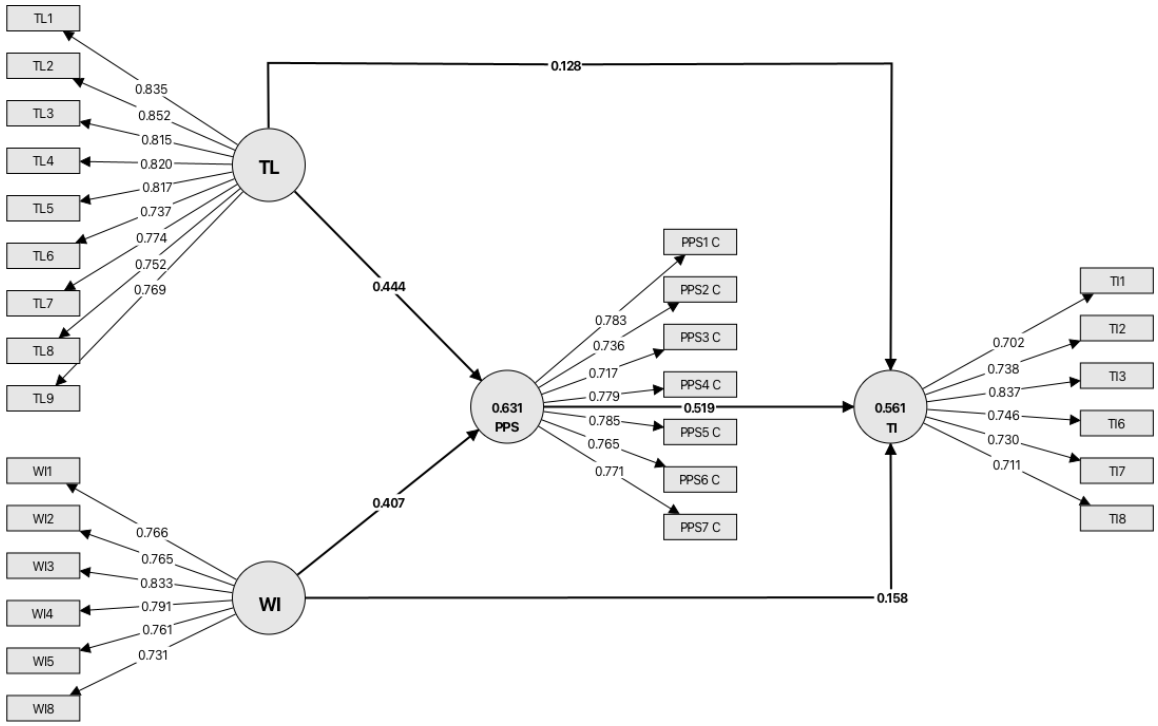

Figure 2. The results of testing the structural model of the theoretical framework

Table 4. Structural Model

	β	T Statistics	P-value	Result
H1: TL -> TI	0.128	1.985	0.047*	Supported
H2: WI -> TI	0.158	2.268	0.023*	Supported
H3: PPS -> TI	0.519	8.170	0.000***	Supported
H4: TL -> PPS	0.444	7.403	0.000***	Supported
H5: WI -> PPS	0.407	6.878	0.000***	Supported
H6: TL -> PPS -> TI	0.231	5.171	0.000***	Supported
H7: WI -> PPS -> TI	0.211	5.535	0.000***	Supported

Note: ***p <. 001, **p <. 01, *p <. 05 (two-tailed test)

The results of the structural model indicated that toxic leadership had a significant positive effect on turnover intention ($\beta = 0.128$, $p < 0.05$), while workplace incivility also had a significant positive effect on turnover intention ($\beta = 0.158$, $p < 0.05$), supporting H1 and H2. Additionally, perceived psychological safety, which was reverse-coded (higher values indicate lower safety), had the strongest significant positive effect on turnover intention ($\beta = 0.519$, $p < 0.001$), confirming H3 and reinforcing its role as a mediator in the relationship.

The results also revealed that toxic leadership significantly reduced perceived psychological safety ($\beta = 0.444$, $p < 0.001$), and workplace incivility also significantly reduced perceived psychological safety ($\beta = 0.407$, $p < 0.001$), supporting H4 and H5. Moreover, the mediation analysis demonstrated that toxic leadership indirectly increased turnover intention by

reducing perceived psychological safety ($\beta = 0.231$, $p < 0.001$), while workplace incivility also contributed to higher turnover intention via lower psychological safety ($\beta = 0.211$, $p < 0.001$), supporting H6 and H7.

DISCUSSION AND IMPLICATIONS

The findings of this research showed the significant effects of toxic workplace behaviors, specifically toxic leadership and workplace incivility, on the turnover intentions of Generation Z employees, with perceived psychological safety as a crucial mediator in these relationships.

The results confirmed that toxic leadership significantly increases turnover intentions among Generation Z employees, aligning with studies by Schmidt (2008) and Mehta and Maheshwari (2014) who identified oppressive leadership styles and destructive communication as factors increasing departure intentions. The findings are consistent with research by Lopes et al. (2025) which confirmed this association in Portuguese organizations, and Hidayat and Wulansari (2025) who revealed similar effects in West Java, indicating Generation Z's lower tolerance for violations of personal rights. Workplace incivility also emerged as a significant determinant of turnover intentions. In alignment with Porath and Pearson (2012), seemingly minor disrespectful behaviors lead to emotional distress and reduced job satisfaction, ultimately elevating turnover intentions. Permatasari and Sugito (2025) confirmed this relationship in hospitality settings, where job satisfaction acted as a mediator between workplace incivility and turnover intentions.

The research revealed that perceived psychological safety showed the strongest direct effect on turnover intention among all variables studied. This finding contrasts with Sobaih et al. (2022), who found a negative relationship, but aligns with Liu et al.'s (2016) research suggesting that psychological safety awareness influences workplace decisions when other factors are present. Kim and Yun (2023) noted that psychological safety climate impacts job stress related to turnover intention, while Rudolph et al. (2018) highlighted how generational differences affect workplace responses. The analysis also confirmed that both toxic leadership and workplace incivility significantly affect perceived psychological safety. Siddiqui and Iqbal (2024) found that toxic leadership reduced psychological safety within Higher Education Institutions, while Tate and Chalhoub (2024) and Jackson et al. (2024) demonstrated that workplace incivility creates environments of fear and mistrust, making employees feel undervalued and leading to damaged professional relationships. This research contributes to theory by integrating psychological safety as a critical mediating mechanism explaining Generation Z turnover dynamics.

The mediation analysis revealed that both toxic leadership and workplace incivility have significant indirect effects on turnover intention through perceived psychological safety. These findings extend the work of Edmondson (1999) and Kahn (1990) by demonstrating how negative workplace behaviors operate through psychological safety deterioration to influence employee retention decisions. The results suggest that even seemingly minor uncivil interactions can substantially impact turnover intentions when they compromise employees' psychological safety, particularly among Generation Z employees who may place higher value on respectful workplace interactions.

From a practical standpoint, organizations aiming to reduce turnover among Generation Z employees should prioritize enhancing psychological safety through supportive leadership and comprehensive strategies addressing toxic behaviors. In the Thai context, where hierarchical structures traditionally influence workplace relationships, organizations should develop leadership programs emphasizing inclusive communication and implement clear anti-toxicity policies tailored to younger workers' expectations. Cultivating environments that value contributions, recognize individual needs, and encourage professional growth can substantially improve retention and organizational performance. This research extends organizational behavior theory by demonstrating how psychological safety functions as a key mechanism connecting toxic workplace behaviors to Generation Z turnover decisions.

LIMITATIONS AND FUTURE RESEARCH POSSIBILITIES

This research has certain limitations that future research should address. First, employing a broader response scale in questionnaires could more accurately measure the emotional nuances and genuine attitudes of Thai respondents, who often exhibit a tendency to select neutral responses, potentially reducing measurement accuracy. This limitation may affect the strength of relationships found in the study, suggesting that actual effects could be stronger than reported. Second, further research could explore additional individual differences influencing perceptions of workplace incivility, as perceptions vary significantly between individuals. Some employees may interpret certain behaviors as neutral rather than harmful, while others may perceive them negatively. Investigating these subjective perceptions could yield deeper insights into workplace dynamics. This limitation highlights the need for mixed-method approaches in future research. Finally, future studies could expand their focus to investigate additional factors, such as individual personality traits, cultural contexts, and specific organizational policies, that may influence perceived psychological safety, enriching our understanding of its mediating role between toxic leadership, workplace incivility, and employee turnover intentions. These limitations emphasize the need for caution when generalizing results across different organizational and cultural contexts.

CONCLUSION

In conclusion, this research affirms the critical influence of toxic leadership and workplace incivility on the turnover intentions of Generation Z employees, mediated through perceived psychological safety. Organizations must actively address and mitigate these negative workplace behaviors by fostering psychologically safe, respectful, and supportive environments. By doing so, organizations can enhance employee satisfaction, engagement, and retention, particularly among younger generations whose workplace expectations significantly differ from those of their predecessors. Ultimately, recognizing and adapting to these generational differences will be crucial for organizational sustainability and long-term success.

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CONFLICTS OF INTEREST

The authors declare that there are no conflicts of interest found in this research.

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HOW AGE MODERATES THE RELATIONSHIP BETWEEN ENTREPRENEURIAL INTENTION, SELF-EFFICACY AND PROACTIVITY

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ABSTRACT

Purpose - Entrepreneurial intention is an important topic in entrepreneurship research because none of any entrepreneurial process will not start without it. A variety of individual factors that influence a person's intention to engage in a start-up business have been investigated. Of which age, self-efficacy and proactive personality are among the most important predictors. However, the direct impacts of age in formatting entrepreneurial intention remains inconclusive. Moreover, although individuals' social, financial and human capital change as they age, extant literature has explored the impacts of the interaction between age and other cognitive characteristics on entrepreneurial intention to a limited extent. Therefore, the study aims to investigate how age moderates the effect of individuals' perceived entrepreneurial self-efficacy and proactivity on their entrepreneurial intention to fulfill the above gaps.

Methodology – The study used the Global Entrepreneurship Monitor's (GEM's) Adult Population Survey 2019 that covers 50 countries from 4 regions (Middle East & Africa, Asia & Pacific, Latin America & Caribbean, Europe & North America) to construct its dataset and SPSS 28 software to proceed statistical analysis.

Results– The study found that age and entrepreneurial self-efficacy are a significant predictor of individual propensity to engage in entrepreneurial activities. Moreover, the older people are, the better individual experience, skill and knowledge predict their intention to launch a new venture.

Implications – The findings imply the potentials of promoting entrepreneurship among third age groups because this group may have not only accumulated knowledge, experience and skills but also desire to continue their social and professional status and optimize their free time. The study also suggests the necessity of considering non-linear influence of age on entrepreneurial proactivity when promoting entrepreneurship in society.

Originality/Value - The study enhances literature on positive relationship between entrepreneurial self-efficacy and entrepreneurial intention, while enriching literature on the role of demographic characteristics in entrepreneurial development process. The study also expands empirical evidence about the effects of proactive personality on entrepreneurial intention, which may vary over the course of life.

Keywords: Entrepreneurial intention, Entrepreneurial proactivity, Entrepreneurial self-efficacy, Age

Paper Type: Research Article

INTRODUCTION

Entrepreneurship, which can be defined either as the creation of new businesses or the process of identifying, evaluating and exploiting new opportunities, is a long and challenging process (Elnadi & Gheith, 2021). It has been considered, to some extent, to play a significant role in facilitating socio-economic growth in both developed and developing nations by creating jobs and

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enhancing innovation (Acs, 2006). Particularly, promoting entrepreneurship among old individuals or senior entrepreneurship is considered to be one of smart solutions that help many governments deal with pressures caused by rapidly aging population (Linardi & Costa, 2022; Maalaoui et al., 2023; Kautonen et al., 2023) such as higher health care and social security costs, or lower labor supply (Agostinho et al., 2025).

Because entrepreneurship essentially starts with entrepreneurial intention (Elnadi & Gheith, 2021), understanding factors that influence the development of entrepreneurial intention has been a major focus of entrepreneurship scholars (Tsai et al., 2016). Based on the theory of planned behavior of Ajzen (1991) and the entrepreneurial event model of Shapero and Sokol (1982) (Elnadi & Gheith, 2021), extant literature has indicated a variety of individual and contextual antecedents of entrepreneurial intention (Schmutzler et al., 2019; Zhang et al., 2022). Of which, age, self-efficacy and proactive personality are among the most widely studied and important predictors (Kumar & Shukla, 2019; Mustafa et al., 2016; Syed et al., 2024). However, compared to the other two, the effects of age on entrepreneurial intention vary and remain more inclusive (Syed et al., 2024). There is also normative belief that people are less willing to engage in entrepreneurial activities as they get older (Maalaoui et al., 2020). Although individuals' social, financial and human capital change over their life time (Maalaoui et al., 2020; Zacher & Kooij, 2017; Linardi & Costa, 2022), current entrepreneurship literature has largely focused on students (Elnadi & Gheith, 2021) and investigated the effects of interaction between individual demographic and cognitive characteristics on entrepreneurial intention to a limited extent (Liao et al., 2022; Barrera-Verdugo et al., 2023).

Considering this background, the study aims to explore the moderating role of age on the relationship between entrepreneurial self-efficacy, entrepreneurial proactivity and entrepreneurial intention using a large dataset collected from Global Entrepreneurship Monitor's (GEM's) Adult Population Survey. The findings contribute to enriching literature on the role of individual demographic characteristics in general and age in particular in predicting entrepreneurial intention, while expanding empirical evidence for the effects of individual cognitive characteristics. The study is structured into 5 parts: theoretical background and hypotheses development, methodology, results, discussion and future research suggestions.

LITERATURE REVIEW

Entrepreneurial intention

The concept of intention has been increasingly studied in entrepreneurship field in the recent years (Maalaoui et al., 2023). It was early defined by Bird (1988) as psychological state that orientates "a person's attention, experience and action toward a specific object (goal) or a path in order to achieve something (means)" (Elnadi & Gheith, 2021:3). Deducing from this concept, entrepreneurial intention can be defined as mental orientation that directs individuals to select and engage in entrepreneurial activities. It reflects their readiness and commitment level to pursue entrepreneurship (Goethner et al., 2012).

Extant entrepreneurship literature has referred to plenty of approaches and theories to understand the concept of entrepreneurial intention (Maalaoui et al., 2023). Of which, theory of planned behavior by Ajzen (1991) and the entrepreneurial event model by Shapero and Sokol (1982) are two most widely used theoretical frameworks (Elnadi & Gheith, 2021). According to Ajzen (1991), entrepreneurial intention of individuals is determined by three components: their attitudes toward entrepreneurship, their perception of social pressure and acceptance of entrepreneurship, and their perceived capabilities and/or the ease of carrying out entrepreneurial behaviors. According to Shapero and Sokol (1982), three essential antecedents of a person's entrepreneurial intention are perceived attractiveness and perceived feasibility to start up a new venture, and personal inclination to act (Canever et al., 2017). Other models have been developed to factor the effects of contextual factors and their interaction with individual factors on entrepreneurial intention, yet the number of research that explores this area is still limited (Schmutzler et al., 2019).

Entrepreneurial self-efficacy and entrepreneurial intention

Self-efficacy refers to people's convictions in their capability to achieve certain outcomes. It also reflects individual differences in terms of magnitude, generality and strength toward a specific situation and activity. People with higher self-efficacy is more likely to initiate the selection of activity, expend their effort and remain persistent in dealing with challenges when intention is initiated (Bandura, 1978). Entrepreneurial self-efficacy is considered to be a context specific concept of self-efficacy and can be defined as people's self-belief in their capabilities to successfully perform entrepreneurial activities (McGee et al., 2009). Drawing upon theory of planned behavior and entrepreneurial event model, entrepreneurial self-efficacy is a crucial predictor of entrepreneurial intention (Tsai et al., 2016). A systematic literature review by Newman et al. (2019) and meta-analysis by Liao et al. (2022) indicate numerous empirical evidence supporting a strong positive relationship between entrepreneurial self-efficacy and entrepreneurial intention across national contexts. Therefore, by using a large cross-nation dataset, the study posits that:

Hypothesis 1: Entrepreneurial self-efficacy is positively associated with entrepreneurial intention

Entrepreneurial proactivity and entrepreneurial intention

Introduced by Bateman and Crant (1993), proactive personality refers to a personal enduring tendency to discover and take actions on opportunities, and preserve their efforts to bring meaningful changes without being constrained by situational forces (Crant, 1996). Because proactive personality covers one key component of entrepreneurial event model, it is highly appealing to entrepreneurship scholars. A number of research have provided empirical support for its positive association with entrepreneurial intention (Hu et al., 2023; Marshall et al., 2019). Deducing from this general concept, the study defines entrepreneurial proactivity as individual propensity to identify and pursue entrepreneurial opportunities and posits that:

Hypothesis 2: Entrepreneurial proactivity is positively associated with entrepreneurial intention.

The moderating effect of age

Current literature has indicated significant (Barrera-Verdugo et al., 2023; Liao et al., 2022) but inconclusive (Zhang & Acs, 2018; Syed et al., 2024) association between age and entrepreneurial intention. For example, using multilevel logistic regression model, Zhang and Acs (2018) found that although overall entrepreneurial intention increased in parallel with age until approximately 80, the relationship pattern varied among different types of entrepreneurs. For novice entrepreneurs, entrepreneurial intention decreased at around the age of 60 and then increased again. In contrast, for full-time entrepreneurs, it started to decrease from the age of 30 and dropped faster from the age of 60.

One of reasons for the inconclusive effects of age on entrepreneurial intention is changes in individual capabilities, perceptions, needs, lifestyle and attitudes toward entrepreneurship over lifespan. On one hand, individuals accumulate more resources such as general knowledge, experience, or socioemotional abilities as they age (Zacher & Kooij, 2017; van Veldhoven & Dorenbosch, 2008), which makes them more interested and capable of launching a business. On the other hand, according to socioemotional selectivity theory, the perception of having limited remaining time (Zacher & Kooij, 2017) can make older individuals to be more risk averse, more present oriented and more selective toward affective activities that bring immediate benefits (Bosma et al., 2020; Huang et al., 2020). Since entrepreneurship is a challenging and risk related process, this perception discourages old people from engaging in entrepreneurial activities. However, some older individuals perceive themselves younger than their actual age. According to motivational theories and continuity theory of lifespan developmental, they remain selective (Zacher & Kooij, 2017) and proactive to engage in meaningful activities as a compensation strategy for their loss of certain social roles (Maalaoui et al., 2023), as an optimization strategy for their retirement time (Zacher & Kooij, 2017) or as an instrumental tool for leaving something

value for future generations (Maalaoui et al., 2020). Entrepreneurial activity can fit well with these strategies (Maalaoui et al., 2023); therefore, aging may not discourage people from involving in entrepreneurship.

Because the number of research that takes into account the effect of different age groups on entrepreneurial intention is still limited (Zhang & Acs, 2018), especially age group of 45 and 65, the study posits that:

Hypothesis 3: Age moderates the relationship between entrepreneurial self-efficacy and entrepreneurial intention

Hypothesis 4: Age moderates the relationship between entrepreneurial proactivity and entrepreneurial intention

Conceptual framework of the study

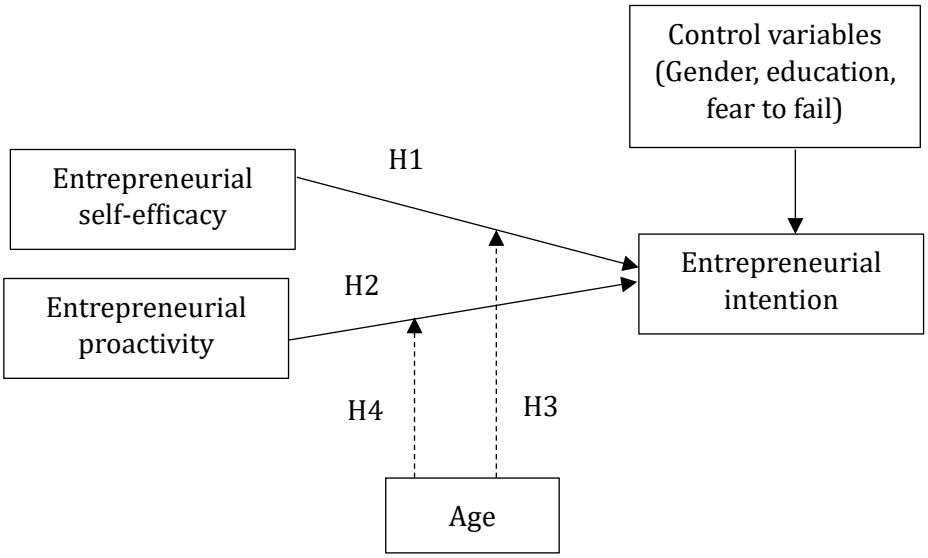

Figure 1. Conceptual framework

METHODOLOGY

Sample data and variable description

Sample data

The study used the Global Entrepreneurship Monitor's (GEM's) Adult Population Survey 2019 to construct its dataset. GEM is the world's largest and most extensive database of entrepreneurship that has been utilized by many national and international bodies for their policy evaluation and development. As of 2019, GEM had over 3 million adults and 114 economies around the world participated in their survey (Bosma et al., 2020). Adult Population Survey (APS) measures not only business characteristics but also individual factors such as motivation, attitudes or actions related to different stages of entrepreneurial process. GEM APS (2019) was administered to more than 2 000 working age adults in each country through its national representative between April and June 2019. The quality of collected data were then cross-checked by GEM's technical team (Bosma et al., 2020). The study used GEM APS because it is one of the few standardized cross-national datasets on entrepreneurship (Schmutzler et al., 2019). It is also one of the few quantitative entrepreneurship surveys that focus on individuals (Bosma et al., 2020) and has wide age coverage. The GEM APS 2019 dataset covers 50 countries from four regions (Middle East & Africa, Asia & Pacific, Latin America & Caribbean, Europe & North America) and three income groups: low-income, middle-income, high-income (Bosma et al., 2020). The original dataset has 163006 observations. However, the study removed observations that has missing data for at least one variable, therefore, the final dataset for analysis contains only 101905 observations.

Dependent variable

Entrepreneurial intention is the dependent variable of the study. It is measured through a question "Are you, alone or with others, expecting to start a new business, including any type of self-employment, within the next three years?". The variable takes value of 1 if respondent answers "Yes" to the question and 0 otherwise. Measuring entrepreneurial intention through a single item is a common approach in entrepreneurship research and fits well with the study's narrow focus (Schmutzler et al., 2019).

Independent variable

Entrepreneurial self-efficacy, entrepreneurial proactivity and age are three explanatory variables of the study.

Entrepreneurial self-efficacy is measured through a question "You personally have the knowledge, skill and experience required to start a new business?". The variable takes value of 1 if respondent answers "Agree" to the question and 0 otherwise. There are a variety of measures for entrepreneurial self-efficacy (ranging from general scale or context specific scale, from one dimension to multidimension) (Newman et al., 2019; McGee et al., 2009). However, the study uses a single-item measure for its consistency with the emphasis of Bandura (1978) for context specific of self-efficacy concept and its popularity among researchers (Schmutzler et al., 2019). Moreover, the single-item measure is considered acceptable despite its limitation (McGee et al., 2009) because the study does not aim to explore self-efficacy in different stages of entrepreneurial development process or in organizational settings (Newman et al., 2019).

Entrepreneurial proactivity is measured through a question "Even when you spot a profitable opportunity, you rarely act on it." The variable takes value of 1 if respondent answers "Agree" to the question and 0 otherwise. This single-item measure is acceptable for its focus on specific task in non-organizational context.

Age is respondents' exact age at the time of the interview and is categorized into 4 groups: first age (18-24 years), second age (25-44 years), third age (45-64 years) and fourth age (65 and above years). This categorization follows the lifespan theory (Laslett, 1987) to avoid logit linearity problem and to allow comparison with other studies.

Control variable: The study included three individual factors as control variables: Gender, Education, Fear to fail because these factors have been found to significantly influence entrepreneurial intention (Barrera-Verdugo et al., 2023; Bosma et al., 2020; Tsai et al., 2016; Schmutzler et al., 2019). Gender takes value of 1 for female and 0 for male. Education is measured on four-point scale (1=some secondary, 2=secondary degree, 3=bachelor or above, and 4=post secondary). Fear to fail is measured through a question "you would not start a business for fear it might fail". It takes value of 1 if the answer is "Agree" and 0 otherwise. The study did not include country as control variable because GEM Global report 2019 shows no difference in entrepreneurial intention among country income level (Bosma et al., 2020).

Statistical method

Given dichotomous nature of dependent variable, the study deployed a binomial logistic regression model to predict probability that an individual intends to start a new venture under the influence of age, entrepreneurial self-efficacy and proactivity. The study used SPSS 28 software to proceed statistical analysis.

RESULTS

Descriptive statistics

More than 70% of respondents did not have intention to launch a business in the next 3 years. The number of people who was unwilling to take actions even if profitable entrepreneurial opportunities were available is 1.7 times higher than that of those who were willing. The number of people who believed in their entrepreurship capabilities is 18.4% higher than that of those who did not. Table 1 shows descriptions and descriptive statistics about the study's variables.

Table 1: Descriptive statistics

Variable	Code in GEM database	Description	Categorical value	Frequency	%
Dependent variable					
Entrepreneurial Intention	FUTSUPyy	Expects to start-up in the next 3 years	Yes	25479	25%
			No	76426	75%
Independent variable					
Entrepreneurial Self-efficacy	SUSKILyy	Has knowledge, skills, ability to start a business	Agree	60318	59.2%
			Disagree	41587	40.8%
Entrepreneurial Proactivity	PROACT_1	Even when you spot a profitable opportunity, you rarely act on it.	Agree	64130	62.9%
			Disagree	37775	37.1%
Age	Age9c	The exact age of the respondent	18-24	11022	10.8%
			25-44	47339	46.5%
			45-64	38639	37.9%
			65 and above	4905	4.8%
Control variable					
Gender	gender		Female	49799	48.9%
			Male	52106	51.1%
Education	GEMEDUC		Some secondary	18279	17.9%
			Secondary degree	33104	32.5%
			Bachelor and above	8449	8.3%
			Post secondary	42073	41.3%
Fear to fail	FRFAILyy	Would not start a business for fear it might fail	Agree	49150	48.2%
			Disagree	52755	51.8%

Regression results

Table 2 shows the regression results for the study. Regarding direct effect hypotheses, the study found that entrepreneurial self-efficacy significantly predicts the probability of entrepreneurial intention. This indicates that when entrepreneurial self-efficacy increases, the probability of individual intent to start up a business increases (b= 0.976, Wald test = 528.142, and p-value < 0.001). Individuals who believe in their skill, knowledge and experience related to entrepreneurship are 2.65 times more likely to engage in entrepreneurial activities than those who do not. In contrast, entrepreneurial proactivity is a negative but non-significant predictor (b = -0.008, Wald test = 0.041, p-value = 0.84) of entrepreneurial intention. Therefore, hypothesis 1 is supported, while hypothesis 2 is not supported.

Regarding moderating effect hypotheses, age does not moderate the relationship between entrepreneurial proactivity and entrepreneurial intention. In contrast, age significantly moderates the relationship between entrepreneurial self-efficacy and entrepreneurial intention (b>0.2, p-value <0.001). This indicates that the older people are, the better individual experience, skill and knowledge predict their intention to launch a new venture. Therefore, hypothesis 3 is supported while hypothesis 4 is not supported.

Regarding the interaction term between age and proactivity, one interesting result is coefficient of third age group is positive while it is negative for other age groups. This may suggest that although age is negatively related to entrepreneurial intention, its moderating effects on the predictability of proactive personality for entrepreneurial intention seem to follow U-shape.

Table 2. Regression results

Variable	B	S.E.	Wald	Exp(B)
Gender (Female)	-0.239	0.015	239.371*	0.787
Age 18-24			1040.829*	
Age 25-44	-0.599	0.05	143.728*	0.549
Age 45-64	-1.605	0.056	809.339*	0.201
Age 65 and above	-2.777	0.17	268.393*	0.062
Education (some secondary)			143.579*	
Education (secondary degree)	-0.128	0.023	31.111*	0.879
Education (Bachelor and above)	0.053	0.032	2.76	1.055
Education (Post secondary)	0.087	0.022	15.794*	1.09
Entrepreneurial self-efficacy[a]	0.976	0.042	528.142*	2.655
Entrepreneurial proactivity[b]	-0.008	0.042	0.041	0.992
Fear to fail	-0.181	0.016	132.314*	0.834
Interaction				
Entrepreneurial self-efficacy[a] * Age 18-24			112.247*	
Entrepreneurial self-efficacy[a] * Age 25-44	0.263	0.049	28.98*	1.301
Entrepreneurial self-efficacy[a] * Age 45-64	0.55	0.055	99.59*	1.734
Entrepreneurial self-efficacy[a] * Age 65 and above	0.796	0.167	22.739*	2.217
Entrepreneurial proactivity[b] * Age 18-24			4.919	
Entrepreneurial proactivity[b] * Age 25-44	-0.047	0.047	1.011	0.954
Entrepreneurial proactivity[b] * Age 45-64	0.014	0.051	0.078	1.014
Entrepreneurial proactivity[b] * Age 65 and above	-0.183	0.13	1.972	0.833
Constant	-0.855	0.047	326.594	0.425*
Chi-square model	11680.887*			
-2 log likelihood	102934.7			
Cox & Snell R Square	0.108			
Nagelkerke R Square	0.16			

* p-value < 0.001
a = has skills to start a business, b= rarely take actions on entrepreneurial opportunities

Table 3. Summary of hypothesis testing result

Hypothesis	Result
H1: Entrepreneurial self-efficacy is positively associated with entrepreneurial intention	Supported
H2: Entrepreneurial proactivity is positively associated with entrepreneurial intention	Not supported
H3: Age moderates the relationship between entrepreneurial self-efficacy and entrepreneurial intention	Supported
H4: Age moderates the relationship between entrepreneurial proactivity and entrepreneurial intention	Not supported

Robustness check

The study's model obtains overall goodness of fit. Chi-square (Hosmer and Lemeshow Test) is 10.267 with p-value = 0.247. There is no evidence of multicollinearity among variables (VIF < 2) and no significant number of influence cases. Cook's distance is less than 1, Leverage value lies between 0 and 1, DFBeta for the regression intercept less than 1. Regarding outlier cases, the study has 1.76% of cases that have standardized residuals greater than 2 and has no cases that have studentized residuals greater than 3. Based on the suggestion of Stevens (2002), the study decided not to remove any of these outliers because their Cook's distance is less than 1 (Field, 2013). However, the study investigated these outliers further to understand why they do not fit

the model. The study found that all of these outlier cases reported to have intention to start up a business, even though 87.8% of them did not believe that they have necessary entrepreneurial skills, knowledge and experience, 67% were not willing to take actions on the availability of profitable entrepreneurial opportunities, and 59% feared to fail. The outlier cases have different employment status, educational level and belong to different age groups, and 61% of them are female. One of reasons for these outliers may be that respondents answered the question of entrepreneurial intention as their long-term plan (the next 3 years), while they answered other questions as their current status. They might have their own plan to build up their competence and consider changes in other environmental factors so that they can get ready to take entrepreneurial opportunities by the time of next 3 years.

DISCUSSION AND IMPLICATIONS

The study aims to explore the moderating effect of age on the relationship between two essential antecedents of entrepreneurial intention: entrepreneurial self-efficacy and entrepreneurial proactivity. The study found that age and entrepreneurial self-efficacy are significant predictors of individual propensity to engage in entrepreneurial activities. This is conceptually consistent with previous studies. Meta-analysis by Liao et al. (2022) confirmed a strong positive relationship between entrepreneurial self-efficacy and entrepreneurial intention across nations. Zhang and Acs (2018) indicated significant changes in tendency to launch a business venture over the course of life. However, unlike previous studies such as Liao et al. (2022), the study also found that age positively accentuates the effect of individuals' perceived capabilities on their entrepreneurial intention. This finding can be explained by the assumptions that as people get older, they gain more knowledge, experience and skills that enhance their willingness and readiness for pursuing entrepreneurial activities. Moreover, older individuals have larger social networks that help them navigate through uncertainties of entrepreneurship better than younger individuals (Syed et al., 2024). These findings suggest that establishing intergenerational teams in which senior people can share knowledge and experience with younger people can be useful to improve success rates of start-ups (Maalaoui et al., 2023). Academic institutions and policy makers should develop or improve entrepreneurial education programs to enhance individuals' knowledge and skills if they want to encourage their engagement in entrepreneurial activities (Mustafa et al., 2016).

Regarding entrepreneurial proactivity, the study does not find its direct contribution to predicting entrepreneurial intention. This finding is consistent with some studies such as Naz et al. (2020), but it contradicts to other studies such as Zhang et al. (2022), or Crant (1996). This inconsistency can be explained by variations in proactivity measures, participants and research context between the studies. While the previous studies measure individual proactivity in general context through the scale of Bateman and Crant (1993), this study measures the proactivity in the context of entrepreneurship. While participants of the previous studies are only students, this study focuses on working age adults. While previous studies focus on single country context such as Chinese, USA, Pakistan, this study covers 50 countries. As a result, it may not be easy to compare the findings of this study with other studies.

Proactive personality is influenced by other individual factors such as motivational, emotional states and energy level (Shi et al., 2023) and contextual factors such as age norms or entrepreneurial environment (Kautonen et al., 2011). Therefore, the non-significant relationship between entrepreneurial proactivity and entrepreneurial intention can be also explained by the absence of some potential mediators in the current study model. Mediators can be individuals' attitude toward entrepreneurship, perceived desirability of entrepreneurial activities, self-efficacy and self-regulation. Chen (2024) and Hu et al. (2023) found that individuals' preferences for entrepreneurship partially mediates the relationship between proactivity and entrepreneurial intention among Chinese university students. Tan et al. (2020) found that expectation of potential benefits gained from the pursuit of entrepreneurship compared to other career choices fully mediates the relationship between proactivity and entrepreneurial intention among Vietnamese people aged from 16. Kumar and Shukla (2019) found partial mediation of self-efficacy on the relationship between personal proactivity and entrepreneurial intention. Moreover, individuals

may be discouraged to think about and take actions on entrepreneurial opportunities (Seo et al., 2024; Kautonen et al., 2011; Pham et al., 2023) if they are often exposed to the failure of other entrepreneurs (Seo et al., 2024) or to unsupportive opinions about starting a business especially from influential groups in the society (Kautonen et al., 2011). However, prior studies indicate that if individuals have strong self-regulation, they can overcome emotional and occupational burdens from others and stay focused on their set target (Nawaz et al., 2024; Seo et al., 2024).

The study does not find any moderation effects of age on the relationship between entrepreneurial proactivity and entrepreneurial intention either. This divergent result can be explained by the desire of old people to get involved in entrepreneurial activities to continue their social and professional status, optimize their free time (Maalaoui et al., 2020), and enhance their self-actualization (Kautonen et al., 2023). For example, unlike common opinion, van Veldhoven and Dorenbosch (2008) found the positive relationship between age and proactivity at work. Although it is not statistically significant, the study may support the potentials of promoting entrepreneurship among third age groups mentioned by some authors such as Maalaoui et al. (2020) and Maalaoui et al. (2023). Old individuals are normally concerned about health care costs (Kautonen et al., 2023) and technological competencies (Maalaoui et al., 2023; Sahut & Mili, 2015). Therefore, to promote senior entrepreneurship, government can provide senior individuals with the access to a network of senior entrepreneurs (Sahut & Mili, 2015), technical and management skill training (Linardi & Costa, 2022), and affordable or single-payer health insurance (Kautonen et al., 2023). Government can also launch awareness campaigns (Maalaoui et al., 2023) to alter normative belief against senior individuals in entrepreneurship (Linardi & Costa, 2022).

Overall, by using entrepreneurship-focused measures of self-efficacy and proactivity, the study enhances literature on the positive relationship between entrepreneurial self-efficacy and entrepreneurial intention and enriches literature on the role of age in particular and demographic characteristics in general in entrepreneurial development process. The study also expands empirical evidence about the effects of proactive personality on entrepreneurial intention, which may vary over the course of life.

LIMITATIONS AND FUTURE RESEARCH POSSIBILITIES

The findings of the study should not be generalized without cautions because the study has some limitations. First, although aging refers to biological, social and psychological changes in a person (Zacher & Kooij, 2017), the study uses only biological age construct. Second, although this study measures self-efficacy and proactivity in entrepreneurship context, using single item measures may not cover full range of the construct meanings. Third, although the parsimony of the study model can make it easy to understand the relationship between constructs, it may fail to capture some important aspects of the relationship (Vandekerckhove et al., 2015). Therefore, future research should use multiple item scales to better capture meanings of self-efficacy and proactive personality in entrepreneurship context. Future research should also utilize psychological aspects of age and include more individual and contextual factors to the model in order to provide more complete picture of the role of age in the formation of entrepreneurial intention and the relationship between proactivity and entrepreneurial intention.

CONFLICTS OF INTEREST

The author declares that there are no conflicts of interest found in this research

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THE FACTORS IMPACTING THE QUALITY OF WORK LIFE OF CONTRACTED EMPLOYEES IN THE PROVINCIAL ELECTRICITY AUTHORITY'S ELECTRIC POWER SYSTEM

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ABSTRACT
Purpose – This study examines factors influencing the quality of work life (QWL) of outsourced employees in Thailand's electricity sector, focusing on labor management practices.
Methodology – A quantitative survey design was employed, utilizing structured questionnaires to collect data from 484 outsourced employees of the Provincial Electricity Authority (PEA). Descriptive and inferential statistical analyses, including t-tests, ANOVA, and multiple regression analysis, were used to examine the relationships between labor management factors and QWL.
Results – The study found that workplace safety, skill development, and labor relations significantly influence QWL, with workplace safety management being the most critical factor. Organizational size was also found to impact on QWL, as employees in larger firms reported better working conditions. However, compensation and welfare management were identified as areas needing improvement, with moderate satisfaction levels reported.
Implications – Based on the research findings, the implications suggest that outsourcing organizations should prioritize skill development management as the most critical factor influencing quality of work life, followed by workplace safety and labor relations management. While organizational size significantly impacts employee well-being, addressing compensation inadequacies remains essential for sustainable workforce retention and satisfaction.
Originality/Value – This study contributes to the literature on labor management by providing empirical insights into outsourced employee experiences in the energy sector. It underscores the importance of structured labor policies to balance cost efficiency with workforce well-being, promoting sustainable employment practices.

Keywords: Quality of work life, Contracted employees, Electricity authority

Paper Type: Research Article

INTRODUCTION

Electricity is a fundamental driver of national development, supporting multiple sectors such as communication, transportation, agriculture, and industry (Horta-Gómez et al., 2021). Recognizing its critical role, Thailand has implemented the Power Development Plan (PDP) 2018–2037, designed to meet growing energy demands while ensuring sustainable economic development (Energy Policy and Planning Office [EPPO], 2019). This initiative is managed by key energy organizations, including the Electricity Generating Authority of Thailand (EGAT), the Metropolitan Electricity Authority (MEA), and the Provincial Electricity Authority (PEA). Among these, the PEA plays a significant role in expanding electricity access to 77 provinces across the country, ensuring equitable distribution of energy resources. However, the increasing complexity

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of electricity infrastructure development has led to the widespread adoption of outsourcing strategies to enhance operational efficiency and cost-effectiveness (Vilko, 2013).

Despite its economic advantages, outsourcing presents significant challenges, particularly concerning the quality of work life for outsourced employees. In the fiscal year 2024, the PEA employed over 20,250 outsourced workers, highlighting the extensive reliance on external labor for electricity distribution and maintenance (Provincial Electricity Authority [PEA], 2024). Outsourced employees often face precarious working conditions, including higher risks of workplace incidents, inadequate healthcare coverage, lower wages, and limited employment benefits. These factors contribute to reduced job satisfaction and increased turnover rates, potentially affecting service reliability and operational efficiency. Ensuring a high quality of work life for outsourced employees is, therefore, essential for maintaining workforce stability and improving performance within the electricity sector.

This study aims to examine the factors influencing the quality of work life for outsourced employees in Thailand's electricity sector and to propose effective management strategies that promote employee well-being and organizational sustainability. By identifying key determinants such as workplace safety, equitable compensation, and employee welfare programs, the research seeks to enhance human resource management practices in both public and private energy organizations. The findings are expected to provide valuable insights for policymakers and business leaders in shaping sustainable labor strategies that balance cost efficiency with workforce well-being, ultimately strengthening Thailand's energy sector competitiveness.

LITERATURE REVIEW

Organizational Features

Organizational features, particularly registered capital, business duration, and the number of employees, serve as critical indicators of a firm's structural capacity and long-term sustainability. Registered capital reflects the financial resources legally committed to business operations, influencing the firm's ability to invest in innovation and expansion (Ausat et al., 2023). Companies with higher registered capital often have greater access to financial and institutional support, enhancing competitiveness and resilience in dynamic markets. The duration of business operations, or firm age, signifies an organization's experience and stability, affecting reputation, customer trust, and overall market presence (Chaudhry et al., 2021). Established businesses typically benefit from accumulated industry knowledge and operational efficiencies, making them more adaptable to market fluctuations. Conversely, newer firms may struggle with resource limitations and market entry barriers. The number of employees is another vital feature, serving as a direct measure of an organization’s scale and capacity to manage workloads and projects effectively (Pratama et al., 2022). Workforce size correlates with operational efficiency and the ability to implement strategic initiatives. However, excessive growth without proper human resource management can lead to inefficiencies and higher turnover rates. Research highlights the importance of organizational features in shaping employee performance and overall firm success. Sutaguna et al. (2023) found that a well-structured organization with adequate resources and employee support positively impacts productivity and job satisfaction. Similarly, Onputtha et al. (2023) emphasized that organizations with strong financial backing and stable workforce structures are better equipped to adopt sustainable practices, particularly in industries with environmental concerns. Collectively, these organizational characteristics provide a foundation for evaluating business resilience, strategic potential, and long-term sustainability.

Labor Management Factors

Labor management factors encompass a range of essential practices, including workplace safety management, income administration and welfare, labor protection, labor relations, and skill development. The management of workplace safety is pivotal in minimizing occupational hazards and enhancing worker productivity, as effective safety training—especially through innovative approaches like VR-based programs—significantly improves knowledge, skills, and safety behaviors (Adami et al., 2021). Income administration and welfare management are equally critical, as fair compensation and comprehensive welfare systems not only motivate employees

but also foster organizational commitment and reduce turnover (Fitzgerald, 2024). Labor protection management ensures compliance with legal standards and safeguards workers' rights, which is essential for maintaining ethical business practices and organizational reputation (da Silva & Amaral, 2019). Furthermore, managing labor relations involves cultivating a cooperative environment between management and employees, which enhances trust and promotes collective problem-solving, thereby driving organizational innovation (Javed et al., 2019). Lastly, the management of skill development is crucial in adapting to technological advancements and maintaining competitiveness, particularly in sectors facing rapid change (Rodrigues et al., 2021). Effective labor management strategies not only contribute to employee satisfaction and well-being but are also instrumental in achieving sustainable business performance, as evidenced in the sustainable practices of the Thai automobile industry (Onputtha et al., 2023). These factors collectively underscore the importance of a holistic approach to labor management, aligning organizational objectives with employee welfare to foster long-term success.

Quality of Work Life

Quality of Work Life (QWL) is a multidimensional concept encompassing fair compensation, workplace safety, career growth, personal development, teamwork, organizational rights, work-life balance, and community engagement. Fair and sufficient compensation ensures financial stability and job satisfaction, directly influencing organizational commitment (Chomphuchai, 2018). Workplace safety is equally vital, as hazardous environments lead to stress and decreased productivity (Cooper & Marshall, 1976). Career progression and job security enhance employee morale, as individuals seek long-term stability and professional advancement (Cascio, 2003). Moreover, providing opportunities for skill enhancement fosters continuous learning and adaptability, which are crucial in dynamic work environments (Riampreecha et al., 2022). Collaboration and teamwork cultivate a supportive workplace culture, reducing stress and improving efficiency (Cascio, 2000). Additionally, ensuring rights and liberties within the organization strengthens trust and engagement, fostering an inclusive work atmosphere (Promthat & & Veerayannon, 2021). Maintaining a harmonious work-life balance prevents burnout and promotes overall well-being, making employees more effective in both professional and personal capacities (Chomphuchai, 2018). Lastly, organizational initiatives that encourage employees to contribute to the community create a sense of purpose, reinforcing positive workplace culture (Riampreecha et al., 2022). Research indicates that organizations prioritizing these QWL factors experience lower turnover rates, higher job satisfaction, and improved productivity (Promthat & & Veerayannon, 2021). Thus, fostering a high QWL is not only beneficial for employees but also instrumental in achieving long-term business success.

METHODOLOGY

This study employed a quantitative survey design to assess the Quality of Work Life (QWL) among outsourced personnel in the power system of the Provincial Electricity Authority (PEA). A structured questionnaire was utilized to collect data on various factors influencing QWL, including personal and organizational characteristics, as well as labor management aspects. The survey design facilitated the systematic collection of quantifiable data, enabling statistical analysis to identify relationships between variables and draw generalizable conclusions about the outsourced workforce's experiences.

This research aimed to study the Quality of Work Life (QWL) of contract employees of the Provincial Electricity Authority (PEA). Given the challenge of determining the exact total population of contract employees, the researcher utilized a quota sampling method to ensure representation across different operational areas of the PEA. The population was conceptually divided into 4 regions. The researcher then set quotas for each region, aiming for a diverse representation of employees. Data were collected from 484 contract employees until the determined quotas for each region were met, ensuring a broad range of perspectives for analysis.

The conceptual model comprises two main parts. The first part was to study the influence of personal characteristics (including gender, age, education level, marital status, income, dependents, debt obligations, work experience, training experience, work type, and regional

location) and organizational characteristics (registered capital, business operation duration, and number of employees) that are significantly related to the quality of work life among outsourced employees in the electricity system. In this part, the hypothesis (H1) was that personal characteristics and organizational characteristics influenced the quality of work life among outsourced employees in the electricity system of the Provincial Electricity Authority. The second part was to study the influence of labor management factors: management of workplace safety, income administration and welfare, management of labor protection, management of labor relations, and management of skill development on the overall quality of work life of outsourced employees. Accordingly, the hypothesis (H2) was that labor management factors influenced the quality of work life among outsourced employees in the electricity system of the Provincial Electricity Authority.

This research used a questionnaire as the main tool for data collection to assess the Quality of Work Life (QWL) of contract employees of the Provincial Electricity Authority (PEA). The questionnaire was systematically designed and divided into five main sections: Personal characteristics, consisting of 11 closed-ended questions to collect information on gender, age, education level, marital status, income, financial burden, work experience, training, job type, and workplace; Organizational characteristics, consisting of three closed-ended questions on registered capital, company operation period, and number of employees. These data were obtained from secondary sources such as the Department of Business Development; Labor management factors, consisting of 25 questions to assess employees' perceptions of workplace safety, welfare, income, labor protection, workplace relations, and skill development; Quality of Work Life (QWL), consisting of 40 questions to assess employees' perceptions of salary, working conditions, job security, skill development opportunities, teamwork, organizational rights, work-life balance, and social contribution; and Additional suggestions, which were sections that allowed respondents to express their opinions or provide additional suggestions. The data collection process was conducted between August and October 2024, starting with ethical approval from the relevant ethics committees. To ensure that the research complies with ethical standards, paper questionnaires were prepared for distribution, and a request was submitted through the Graduate School, North Bangkok University, to request permission to collect data. After receiving permission, questionnaires were distributed to the selected sample group and the returned questionnaires were collected. After that, the returned questionnaires were checked for completeness and accuracy and were used for further analysis.

Data analysis in this research was conducted to achieve the stated objectives by using descriptive and inferential statistics. In the first step, descriptive statistics such as frequency, percentage, mean, and standard deviation were used to summarize information about the personal characteristics, organizational characteristics, and quality of work life (QWL) of the respondents. Later, inferential statistics were used to test the differences and relationships between the variables. The t-test was used to compare the differences in QWL between the sample groups with different personal characteristics and organizational characteristics. For comparisons between more than two groups, a one-way analysis of variance (ANOVA) was used, with the Levene's test for homogeneity of variance being tested if the variances were found to be homogeneous. The Least Significant Difference (LSD) test was used for pairwise differences, but if the variances were not homogeneous, the Welch's test and the Dunnett T3 pairwise test were used. In addition, the Multiple Regression Analysis (MRA) was used to study the labor management factors influencing QWL by considering the adjusted regression coefficient (Adjusted R^2), F-statistic and t-statistic to assess the appropriateness of the model and the significance of the independent variables studied.

RESULTS

Personal Characteristics of Outsourced Employees

Comprehensive and legitimate responses were obtained from 484 questionnaires in this investigation. The personal characteristics of outsourced employees were analyzed, and several significant trends were identified. The details are shown below.

Table 1. Personal Characteristics of Outsourced Employees

Personal Characteristics of Outsourced Employees	Number (Persons)	Percentage (%)
1. Gender		
1.1 Male	455	94.00
1.2 Female	29	6.00
2. Age		
2.1 30 years or younger	259	53.50
2.2 31 - 40 years	141	29.10
2.3 41 - 50 years	55	11.40
2.4 51 – 60 years	29	6.00
3. Educational		
3.1 High school / Vocational Certificate or lower	194	40.10
3.2 Diploma / Associate Degree	196	40.50
3.3 Bachelor's Degree	94	19.40
4. Status of marriage		
4.1 Single	312	64.50
4.2 Married	148	30.60
4.3 Window / Divorced / Separated	24	5.00
5. Income (THB/day)		
5.1 350 - 400	259	53.50
5.2 401 - 450	82	16.90
5.3 451 - 500	73	15.10
5.4 More than 500	70	14.50
6. The need to provide for dependents		
6.1 No dependents	160	33.10
6.2 Up to 4,000 THB/month	133	27.50
6.3 4,001 - 8,000 THB/month	141	29.10
6.4 More than 8,000 THB/month	50	10.30
7. Financial responsibilities, such as debt repayment		
7.1 No debt	167	34.50
7.2 Up to 4,000 THB/month	176	36.40
7.3 4,001 - 8,000 THB/month	102	21.10
7.4 More than 8,000 THB/month	39	8.10
8. Relevant work experience		
8.1 1 – 3 years	206	42.60
8.2 4 – 6 years	130	26.90
8.3 7 – 9 years	58	12.00
8.4 10 years or more	90	18.60
9. Prior training or skill-building experience		
9.1 Yes.	441	91.10
9.2 No.	43	8.90
10. The kind of work done on the electrical system		
10.1 Standard-level workers	234	48.30
10.2 Skilled workers	157	32.40
10.3 Specialized workers	93	19.20
11. The regional work site		
11.1 Northern Region	162	33.50
11.2 Northeastern Region	124	25.60
11.3 Central Region	103	21.30
11.4 Southern Region	95	19.60
Total	484	100

From Table 1, The analysis of the personal characteristics of outsourced employees who work in the electricity system of the Provincial Electricity Authority (PEA) illustrates specific attributes of this workforce, which are essential for the operation of the electrical system. With a high school or equivalent education, the majority of respondents were male and aged 30 or younger. Basic living expenses were only marginally covered by the average daily income of 350–400 THB, which was earned by the majority of individuals who were single. Within the 4,000 THB per month limit, this group typically maintained manageable debt levels and did not have any dependents. These findings are indicative of the financial vulnerability of this demographic and the necessity of skill development to improve their employment security and career prospects.

Number and Percentage of Outsourcing Organizations of Outsourced Employees

Table 2. Number and Percentage of Outsourcing Organizations of Outsourced Employees in the Electricity System of the Provincial Electricity Authority, Classified by Organizational Characteristics

Organizational Characteristics	Number (Persons)	Percentage (%)
1. Registered Capital		
1.1 Not exceeding 100 million THB	339	70.00
1.2 More than 100 million THB	145	30.00
2. Business Operation Duration		
2.1 Not exceeding 20 years	11	2.30
2.2 More than 20 years	473	97.70
3. Number of Employees		
3.1 Not exceeding 1,500 employees	100	20.70
3.2 1,501–2,000 employees	69	14.30
3.3 More than 2,000 employees	315	65.10
Total	484	100

From Table 2, presents the results of the organizational characteristics analysis of outsourced employees in the Provincial Electricity Authority's electricity system. The majority of organizations have a registered capital of less than 100 million THB, have been in operation for more than 20 years, and employ more than 2,000 staff members. Strong labor management capabilities and stability are reflected in these attributes.

Labor Management Factors for Outsourced Employees

Table 3. Mean and Standard Deviation of Labor Management Factors for Outsourced Employees in the Electricity System of the Provincial Electricity Authority Overall

Labor Management Factors	$\bar{X}$	S.D.	Management Level
1. Management of workplace safety	4.27	.621	High
2. Income administration and welfare	3.18	.627	Moderate
3. Management of labor protection	3.82	.776	High
4. Management of labor relations	3.59	.851	High
5. Management of skill development	3.86	.787	High
Overall	3.74	.604	High

From Table 3, The mean and standard deviation of labor management factors for outsourced employees operating in the electricity system of the Provincial Electricity Authority, with a total sample of 484 respondents, were analyzed in Table 3. The following results were obtained: In

general, the labor management factors were evaluated at a high level, with a mean score of ($\overline{X}$ = 3.74, S.D.=.604). The mean score of workplace safety management was the greatest among the individual factors at a high level ($\overline{X}$ = 4.27, S.D.=.621). Conversely, welfare and income management exhibited the lowest mean score, which was classified as moderate ($\overline{X}$ = 3.18, S.D.=.627)

Table 4. Quality of Work Life Standard Deviation and Mean for Outsourced Employees in the Provincial Electricity Authority's Electricity System (Overall)

Quality of Work Life Factors (Overall)	$\overline{X}$	S.D.	Level
1. Fair and sufficient compensation	3.06	.823	Moderate
2. Workplace safety	3.85	.670	High
3. Career progression and job security	3.92	.606	High
4. Opportunities to enhance one's personal skills	3.85	.647	High
5. Collaboration and teamwork.	4.14	.616	High
6 Rights and liberties within the organization	3.91	.670	High
7. Maintaining a harmonious work-life equilibrium	3.74	.684	High
8. Contribution to the community	3.81	.725	High
Overall	3.78	.515	High

From Table 4, The following findings were disclosed by the comparison of the mean and standard deviation of the quality of work life (QWL) for outsourced employees operating in the electricity system of the Provincial Electricity Authority of Thailand on a sample of 484 respondents, as shown in Table 4. In general, the QWL of outsourced personnel was evaluated at a high level, with a mean score of ($\overline{X}$ = 3.78, S.D.=.515). The mean score for cooperation and collaboration was the best among the individual dimensions, with a rating of high levels ($\overline{X}$ = 4.14, S.D.=.616). In contrast, the mean score for adequate and reasonable compensation was the lowest, with a moderate rating ($\overline{X}$ = 3.06, S.D.=.823).

Hypothesis Testing

Table 5. Summary of Variance Analysis of Quality of Work Life for Outsourced Employees in the Electricity System of the Provincial Electricity Authority Based on Personal Characteristics

Personal Characteristics Factors	Quality of Work Life for Outsourced Employees in the Electricity System of the Provincial Electricity Authority		
	Statistic t, F Statistics[a]	p-value	Statistical Hypothesis Test Results
1. Gender	.075 (t-test)	.940	Rejected
2. Age	.845 (One-way ANOVA)	.470	Rejected
3. Education Level	2.874 (One-way ANOVA)	.057	Rejected
4. Marital Status	.621 (One-way ANOVA)	.538	Rejected
5. Income	1.156 (One-way ANOVA)	.326	Rejected
6. Responsibility for Supporting Dependents	1.256 (One-way ANOVA)	.289	Rejected
7. Debt Repayment or Other Obligations	2.359 (One-way ANOVA)	.071	Rejected

Table 5. (Cont.)

Personal Characteristics Factors	Quality of Work Life for Outsourced Employees in the Electricity System of the Provincial Electricity Authority		
	Statistic t, F Statistics[a]	p-value	Statistical Hypothesis Test Results
8. Work Experience	1.679 (One-way ANOVA)	.171	Rejected
9. Experience in Training and Development	1.461 (t-test)	.144	Rejected
10. Type of Work Performed in the Electricity System	2.243 (One-way ANOVA)	.107	Rejected
11. Regional Work Location	1.988 (One-way ANOVA)	.115	Rejected

From Table 5, the following personal characteristics were identified: Tested using the t-test (Independent Samples Test), variables with two groups included gender and experience in training and development. The F-test (One-way ANOVA) was employed to evaluate variables with more than two groups. These variables included age, education level, marital status, income, responsibility for supporting dependents, debt repayment or other obligations, work experience, type of work performed in the electricity system, and regional work location.

In general, the analysis revealed that the quality of work life (QWL) of outsourced employees in the electricity system of the Provincial Electricity Authority did not exhibit statistically significant differences when categorized by gender, age, education level, marital status, income, responsibility for supporting dependents, debt repayment or other obligations, work experience, experience in training and development, type of work performed, or regional work location. Variables with two groups, such as registered capital and business operation duration, were subjected to the t-test (Independent Samples Test) in terms of organizational characteristics. Specifically, the F-test (One-way ANOVA) was implemented for variables with more than two groups, with a focus on the number of employees.

Table 6. Variance Analysis of Quality of Work Life for Outsourced Employees in the Electricity System of the Provincial Electricity Authority Based on Organizational Characteristics

Organizational Characteristics Factors	Quality of Work Life for Outsourced Employees in the Electricity System of the Provincial Electricity Authority of Thailand		
	Statistic F Statistic[a]	p-value	Statistical Hypothesis Test Results
1. Capital that is registered	-.285 (t-test)	.775	Rejected
2. The duration of business operations Duration	-.652 ((t-test)	.515	Rejected
3. The number of employees	5.406** (One-way ANOVA)	.005	Rejected

Note: ** Note: Statistical significance at the .01 level., a. Asymptotically, F distributed

From Table 6, organizational characteristics were examined, which identified the subsequent:

1. The t-test (Independent Samples Test) was employed to test variables with two groups, including registered capital and business operation duration. The analysis revealed that the quality of work life (QWL) of outsourced employees in the Provincial Electricity Authority's

electricity system did not differ significantly when categorized by registered capital and business operation duration (p-value >.05). The null hypothesis (H0) was, therefore, not rejected.

2. The analysis indicates that the QWL of outsourced employees differed significantly at .01 level (p-value =.005) when categorized by the number of employees for variables with more than two groups, as tested using the F-test (One-way ANOVA). For this reason, the null hypothesis (H_0) was rejected, and the alternative hypothesis (H_1) was accepted.

Table 7. Analysis of Labor Management Factors Influencing the Overall Quality of Work Life for Outsourced Employees in the Electricity System of the Provincial Electricity Authority

Labor Management Factors	Unstandardized Coefficients		Standardized Coefficients	t	p-value
	B	SE	Beta		
(Constant)	1.197	.109		10.958	<.001
1. Management of workplace safety	.183	.033	.220	5.560**	<.001
2. Income administration and welfare	.144	.028	.176	5.094**	<.001
3. Management of labor protection	.067	.029	.101	2.321*	.021
4. Management of labor relations	.127	.030	.210	4.295**	<.001
5. Management of skill development	.165	.034	.251	4.850**	<.001
$R = .788$, $R^2 = .620$, Adjusted $R^2 = .616$, SEE = .31963, F = 156.135, p-value=<.001					

Note: Statistical significance at the .01 level (**), at the .05 level (*).

From Table 7, the multiple regression analysis demonstrated that the five labor management factors collectively accounted for 61.6% of the variance in the quality of work life (QWL) of outsourced employees in the electricity system of the Provincial Electricity Authority (Adjusted R^2 =.616). At statistical significance levels of.01 and.05., the QWL of outsourced employees was significantly influenced by the factors of workplace safety management, welfare and income management, labor protection management, labor relations management, and skill development management. The quality of work life (QWL) of outsourced employees in the electricity system of the Provincial Electricity Authority was determined to be most significantly influenced by skill development management (Beta =.251), workplace safety management (Beta =.220), and labor protection management (Beta =.101), all of which were weighed in relation to the influence of independent variables. The equation can be written as follows:

Overall Quality of Work Life = 1.197 + 0.183 Management of workplace safety + 0.144 Income administration and welfare + 0.067 Management of labor protection + 0.127 Management of labor relations + 0.165 Management of skill development

DISCUSSION AND IMPLICATIONS

From evaluating the quality of work life (QWL) of outsourced personnel within the energy system of the Provincial energy Authority (PEA) in relation to their individual and organizational attributes, the finding highlights the significant influence of individual and organizational attributes on employee well-being and job satisfaction. The findings indicate that while personal characteristics such as gender, age, education level, marital status, income, and debt obligations do not significantly affect QWL, organizational attributes, particularly workforce size, play a critical role (Promthat & & Veerayannon, 2021). Employees in larger organizations with stable operational structures tend to experience better work conditions and job security, reinforcing previous research emphasizing the benefits of well-established firms in fostering employee satisfaction (Jitkasem, 2020; Sukcharoen, 2020). The study underscores that companies with over 2,000 employees and extensive business operations offer stronger labor management capabilities, which are positively associated with better QWL. This aligns with Herzberg et al.'s (1959) motivation-hygiene theory, suggesting that larger firms provide greater job security and career development opportunities, thereby improving employee morale.

Moreover, labor management factors such as skill development, workplace safety, and labor protection significantly enhance QWL, as organizations that prioritize these aspects contribute to employee motivation and overall job performance (Cascio, 2000; Laosaensuk, 2019). Conversely, income administration and welfare management were found to be areas requiring improvement, as employees reported moderate satisfaction with compensation levels (Smith, 2019). The moderate rating for income administration reflects the inadequacy of the current daily wage range of 350-400 THB, which barely covers basic living expenses and fails to provide financial security for employees supporting dependents or managing debt obligations. To address this critical gap, organizations should implement performance-based compensation structures, establish comprehensive health insurance coverage, and provide housing or transportation allowances that align with regional cost-of-living standards. Such improvements in compensation packages would not only enhance employee retention and motivation but also strengthen the overall effectiveness of other labor management factors identified in this study.

The study further highlights that employees engaged in skill development initiatives report higher job satisfaction, as continuous training fosters adaptability and career growth (Cascio, 2003; Riampreecha et al., 2022). Additionally, workplace safety was identified as a key determinant of QWL, consistent with findings emphasizing the critical role of risk mitigation and hazard prevention in enhancing employee productivity and reducing occupational stress (Sirimongkol, 2021; Chatterjee, 2018). Strong labor relations management also contributes to organizational trust, ensuring effective communication and collaboration, which are essential for employee retention and workplace harmony (Turner, 2017; Javed et al., 2019). Furthermore, research on outsourced employees suggests that financial vulnerability is prevalent, particularly among workers with lower educational attainment and limited income, underscoring the necessity for better financial planning and support systems within organizations (Sukcharoen, 2020; Promthat & & Veerayannon, 2021). Overall, the study affirms that organizational features and labor management factors collectively shape QWL, with larger, well-established organizations providing employees with greater stability, enhanced workplace conditions, and career development opportunities, thereby fostering long-term job satisfaction and business sustainability.

From examining the labor management methods of outsourcing contractors that affect the quality of work life of outsourced workers inside the energy system of the PEA, the findings reveal that labor management methods employed by outsourcing contractors significantly influence the quality of work life (QWL) of outsourced workers within the energy system of the Provincial Electricity Authority (PEA). Among the key labor management factors, workplace safety management emerged as a critical determinant of employee well-being, underscoring the importance of providing a secure working environment and mitigating occupational hazards (Sirimongkol, 2021; Chatterjee, 2018). Outsourcing organizations that prioritize safety initiatives foster higher job satisfaction and lower stress levels, contributing to overall employee stability. Additionally, income administration and welfare management play a substantial role in ensuring financial security for outsourced employees, although findings indicate a gap between compensation structures and employee expectations (Smith, 2019; Fitzgerald, 2024). While fair wages and benefits enhance productivity and motivation, inadequate compensation may lead to dissatisfaction and hinder workforce retention. Labor protection measures, such as adherence to labor laws and enforcement of fair employment practices, further support workforce stability by safeguarding workers' rights and maintaining a balanced work-life dynamic (Laosaensuk, 2019; da Silva & Amaral, 2019). The findings suggest that organizations that prioritize labor protection cultivate trust and foster higher employee engagement. Strong labor relations management is another influential factor, as positive workplace relationships and open communication channels enhance collaboration and reduce turnover rates (Turner, 2017; Javed et al., 2019). Organizations with effective labor relations strategies tend to experience higher job commitment and employee satisfaction.

Furthermore, skill development management remains a crucial driver of long-term employment sustainability, equipping outsourced employees with the necessary competencies to adapt to industry demands and technological advancements (Cascio, 2000; Rodrigues et al.,

2021). Workers engaged in continuous learning opportunities exhibit higher motivation and career stability, reinforcing the long-term benefits of investment in training programs. The results highlight that outsourcing contractors with structured labor management approaches are more effective in improving QWL, with workplace safety and skill development management being particularly impactful (Onputtha et al., 2023; Sutaguna et al., 2023). However, while organizations demonstrate a commitment to these areas, challenges persist in meeting employee expectations regarding income administration and welfare (Promthat & & Veerayannon, 2021; Piyaporn Promthat, 2021). Addressing these gaps through equitable compensation policies and enhanced welfare programs would further enhance the overall QWL of outsourced employees. Ultimately, the study underscores the necessity for outsourcing contractors to adopt comprehensive labor management strategies that integrate safety, fair wages, legal protections, positive workplace relations, and continuous skill development to foster a more stable and productive workforce (Cascio, 2003; Herzberg et al., 1959).

The findings of this research offer both practical and theoretical implications for labor management and the quality of work life (QWL) of outsourced employees in the energy sector. Practically, the study highlights the need for outsourcing contractors to implement structured labor management strategies that prioritize workplace safety, fair compensation, skill development, and strong labor relations. Organizations that invest in safety measures and continuous training programs can enhance job satisfaction, reduce employee turnover, and improve overall workforce productivity. Addressing wage disparities and enhancing welfare policies are also critical for increasing employee retention and financial security. Furthermore, ensuring compliance with labor protection laws strengthens trust and fosters a stable work environment. Theoretically, this research reinforces the relevance of motivation and labor management theories, particularly Herzberg's Two-Factor Theory, which suggests that both hygiene factors (such as salary and job security) and motivators (such as career development opportunities) influence job satisfaction. Additionally, the study contributes to organizational commitment literature by demonstrating how effective labor management practices improve employee engagement and long-term workforce stability. By bridging theoretical insights with real-world applications, this research provides valuable guidance for policymakers, business leaders, and HR professionals in designing sustainable labor policies that enhance both worker well-being and organizational success.

LIMITATIONS AND FUTURE RESEARCH POSSIBILITIES

This study, while providing valuable insights into labor management and the quality of work life (QWL) of outsourced employees in the energy sector, has several limitations that open avenues for future research. One key limitation is its focus on general labor management factors without examining the impact of technological advancements in electrical systems. Future research could analyze how the adoption of new technologies or innovations influences workplace safety, operational efficiency, and overall QWL among outsourced employees. Additionally, this study does not account for organizational culture and internal communication systems, which play a crucial role in shaping job satisfaction and minimizing conflicts between outsourced and regular employees. Exploring these aspects in future studies could provide deeper insights into how strong communication frameworks and an inclusive organizational culture contribute to workforce cohesion and productivity.

Another limitation is the study's reliance on cross-sectional data, which may not capture long-term changes in labor management practices and employee well-being. Longitudinal studies could provide a more comprehensive understanding of how sustained improvements in labor policies impact outsourced employees over time. Furthermore, expanding research to include different industries or multinational outsourcing contexts could enhance the generalizability of the findings. Addressing these gaps would offer a more holistic perspective on improving labor management strategies and fostering a more equitable and sustainable work environment for outsourced employees.

CONCLUSION

The Provincial Electrical Authority's outsourced workers' quality of work life (QWL) management is illuminated by this study. Safety, welfare, income, labor protection, labor relations, and skill development affect QWL. Most importantly, workplace safety contributed to job stability, professional growth, and decreased workplace dangers. However, welfare and income still limit employee motivation and happiness, highlighting the need for improvements. Maintaining employment standards and perks fosters work-life balance. Strong labor relations support cooperation and organizational commitment, while skills development boosts employee potential and work flexibility. According to the findings, firms should emphasize the full development of these measures, focusing on outsourced employee skills and welfare. Employment security and workplace efficiency depend on this.

CONFLICTS OF INTEREST

The author declares that there are no conflicts of interest found in this research.

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INTEGRATED MANAGEMENT GUIDELINES FOR REDUCING AIR POLLUTION FROM VEHICLES IN BANGKOK

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ABSTRACT

Purpose – Vehicular air pollution in Bangkok poses a significant threat to public health and environmental quality. This study aims to analyze the acceptance of air pollution control measures among Bangkok residents by considering key demographic factors and public awareness. It also seeks to recommend a comprehensive management strategy to effectively address the issue.

Methodology – A mixed-methods approach was employed, integrating both quantitative and qualitative research methods. The quantitative phase involved a survey of 402 individuals who use either private vehicles or public transportation in Bangkok. The qualitative phase consisted of in-depth interviews with 17 experts specializing in air pollution management. Data analysis included descriptive statistics, one-way ANOVA, and multiple regression analysis.

Results – The findings indicate that educational attainment, occupation, and income significantly influence acceptance of air pollution control measures, while gender and age do not. Additionally, a strong correlation was found between public awareness of air pollution and acceptance levels, with punitive measures such as fines receiving the highest level of support.

Implications – The study proposes an integrated management framework comprising eight strategic components: 1) promoting electric vehicles and clean energy, 2) using AI and Big Data for air quality monitoring, 3) enforcing strict emission regulations, 4) developing clean-energy public transportation, 5) providing economic incentives for sustainable energy adoption, 6) enhancing public environmental awareness, 7) establishing a centralized environmental management agency, and 8) reinforcing legal enforcement. These strategies offer practical guidance for both governmental and private stakeholders.

Originality/Value – This research contributes to the understanding of public acceptance of air pollution control policies in a major Southeast Asian metropolis. By linking demographic and awareness factors with policy acceptance, it offers actionable insights, and a comprehensive strategic framework tailored to Bangkok's urban and environmental context.

Keywords: Atmospheric contamination, Automobiles, Pollution mitigation, Bangkok

Research Type: Research Article

INTRODUCTION

Vehicular air pollution in big urban centers, like Bangkok, poses a substantial threat to human health and environmental quality. The World Health Organization (2020) indicates that fine particulate matter (PM2.5 and PM10) and toxic gases, such as carbon monoxide (CO) and nitrogen dioxide (NO_2), predominantly derived from fossil fuel combustion, are the primary contributors to respiratory diseases, cardiovascular disorders, and cancer. This predicament is intensified by traffic congestion and ineffective public transportation networks, resulting in heightened reliance

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on private vehicles and, in turn, exacerbating air pollution (Thongkum et al., 2020). Resolving this issue requires systematic management strategies that integrate comprehensive methods, including law enforcement, economic tools, and infrastructure development to advance clean energy cars. Nonetheless, a considerable barrier exists in the effective integration of these policies while garnering public support.

This study examines the factors affecting the adoption of vehicle air pollution management measures, analyzing key variables such as personal characteristics (e.g., age, education level, occupation, and income) that influence environmental behavior and policy acceptance. Yamineva and Romppanen (2017) emphasize that air pollution control law in various nations is deficient in rigor and effective implementation, leading to inadequate pollution control measures.

Notwithstanding prior study on air pollution management techniques, there exists a paucity of studies that amalgamate legal, economic, and infrastructural variables to formulate viable strategies for Bangkok. Numerous studies examine individual elements, such as law enforcement (Yamineva & Romppanen, 2017). Nevertheless, they fail to consider the interconnections among these aspects to propose applicable recommendations for Thailand. This research is crucial in filling the academic void by offering a thorough vehicular air pollution management strategy that can function as a policy framework for sustainable air pollution mitigation in Bangkok.

Objectives of the Research

To assess the acceptance of vehicular air pollution reduction measures in Bangkok, categorized by individual demographic characteristics.

To examine public awareness of vehicular air pollution and its impact on the acceptance of control measures in Bangkok.

To propose integrated management strategies for reducing vehicular air pollution in Bangkok.

LITERATURE REVIEW

Awareness of Vehicular Air Pollution

Integrated Management Approaches (IMA) is a concept used by organizations to integrate various management systems, such as quality (ISO 9001), environment (ISO 14001), and occupational safety (ISO 45001) under a single framework effectively, with the aim of increasing effectiveness, reducing redundancy, and promoting sustainable development. Several studies have found that good integration of Integrated Management Systems (IMS) will result in cost reduction, increased efficiency, and increased stakeholder satisfaction (Dahlin & Isaksson, 2017). This integration not only reduces redundancy, but also improves efficiency in resource utilization, information management, and strategic decision-making. However, the success of integrated management systems depends on the design that is consistent with the organization's goals and culture, not just the integration of documents (Wilkinson & Dale, 2000). This means that the implementation of the integrated management approach must start with a deep understanding of the organizational context, including the analysis of work structures, operating processes, and the readiness of personnel to accept change. Planning and implementation must be systematic. By using the principles of organizational needs analysis and comprehensive risk management (Simion et al., 2021), risk management in an integrated system must consider the risks arising from the interconnection of different systems and their potential impact on overall operations. In addition, the depth of integration has been proposed, ranging from technical coordination to embedding the concept of integrating management systems into the organization's learning culture (Jørgensen et al., 2006). Creating this learning culture is the key to the sustainable success of the integrated management approach, as it helps personnel understand and accept changes, and participate in the continuous development and improvement of the system. Therefore, the integrated management approach is a strategic tool with potential to support the organization's competitiveness and sustainability in the long term.

Awareness of Vehicular Air Pollution

Awareness refers to the process by which individuals perceive, understand and value certain information or issues, reflecting their knowledge, understanding and responding to them in a rational and responsible manner. Awareness of vehicle air pollution is a multidimensional issue, involving knowledge, attitudes and perceptions about air pollution and control measures. Understanding these factors is essential for developing effective approaches to reduce the impacts on public health and the environment. Research in several countries suggests that the public has a general level of awareness of air pollution and its health effects. For example, in Ireland and Accra, Ghana, more than 66% of respondents were aware of the impact of air pollution on their health (Quintyne & Kelly, 2023; Odonkor & Mahami, 2020). However, there are gaps in knowledge about sources of pollution, for example, doctors in Lebanon have a limited understanding of obscure sources of pollution, such as e-cigarettes or air fresheners (Assi et al., 2022). In terms of attitudes, the public generally sees air pollution reduction as a shared responsibility, and health professionals see their role, but few ask patients about their exposure to air pollution (Assi et al., 2022). For pollution control measures Technological advances such as clean engines and stricter policies have helped reduce vehicle emissions in the United States and Europe (Wallington et al., 2022) and regulating a small number of high-emission vehicles has been found to be more effective than limiting the use of conventional vehicles (Böhm et al., 2022). Public attitudes toward these measures have been relatively positive, with support for clean energy vehicles and public transport (Liang et al., 2023). Meanwhile, emotionally engaging and empathetic communication can be effective in changing behavior (Riley et al., 2021), and there have been calls for global standards for air quality measurement and coordinated policymaking across the world (Locke et al., 2022).

Acceptance of Vehicular Air Pollution Control Measures in Bangkok

Acceptance refers to the process by which an individual or group of individuals are open to, agree with, and are ready to comply with or support an approach, measure, or policy, which may stem from their understanding, perceived benefits, or motivations that are consistent with their own values and context. Acceptance of vehicle air pollution control measures depends on a combination of sanctions, incentives, and corporate social responsibility (CSR) measures, each of which faces different challenges in the context of dense cities with severe pollution levels. Sanctions, such as fines, aim to reduce non-compliance, but their effectiveness is limited by inconsistent enforcement and low public awareness (Kuilim et al., 2023). Meanwhile, pollution taxes, such as high-emission vehicle taxes, can provide financial incentives to avoid using polluting vehicles, but their success depends on public acceptance and the state's ability to effectively collect taxes (Wongwatcharapaiboon, 2020). In terms of incentives, tax cuts for low-emission vehicles have been proven to be an effective strategy to stimulate the adoption of clean technologies in China. This can be applied in the context of Bangkok (Lo et al., 2021). In addition, soft loans can help reduce financial barriers to purchasing or upgrading vehicles to lower emissions (Qin & Gao, 2022), and subsidies for public transport fares, such as electric trains, can significantly reduce private car use in the suburbs of Bangkok (Thaithatkul et al., 2023). Meanwhile, CSR initiatives, such as campaigns to raise awareness about sustainable transport or support community pollution reduction activities, can effectively promote private sector and public participation (Thongpracum & Silpjaru, 2020). Overall, a combination of measures appropriate to the Bangkok context, coupled with comprehensive policy design and public participation, is the key to sustainable vehicle pollution management (Edelman, 2022).

Research Hypotheses

The acceptance of vehicular air pollution control measures in Bangkok varies based on individual characteristic characteristics.

Awareness of vehicular air pollution influences the acceptance of control measures for it in Bangkok.

Conceptual Framework

Figure 1: Conceptual Framework of the Research

METHODOLOGY

In this study, a mixed-method research method was used, which combines quantitative and qualitative research methods, to obtain more comprehensive and in-depth data. The research process divided the sample and population into 2 main groups: quantitative research group and qualitative research group. For the quantitative research, the target group consisted of private car drivers, bus drivers, and public transport passengers in Bangkok. The sample size calculation used the formula of Krejcie and Morgan (1970) under a 95% confidence level and a 5% error margin. The appropriate sample size was 354 people. However, to prevent the problem of incomplete data, the sample size was increased by another 29%, or approximately 500 people, using probability sampling to select the sample. The data were collected from September to November 2024. For the qualitative research, 17 key informants were selected, who were executives and experts from 8 government agencies involved in air pollution control and management in Bangkok. The minimum qualification is to have at least 5 years of experience in this field.

The research instruments are divided into 2 main types according to the nature of the data: quantitative and qualitative data collection instruments. For quantitative data collection, a questionnaire developed online via the Google Forms platform was used, with a total of 402 respondents providing complete information. For qualitative data collection, semi-structured interviews were conducted with experts with experience in air pollution control and management in Bangkok to extract in-depth information, opinions, and direct experiences related to the research issues in detail. The interviews were planned in advance and conducted systematically with the selected informants based on strict criteria.

For the data analysis process, quantitative research used descriptive statistics to show frequencies and percentages, as well as hypothesis testing using a one-way analysis of variance (One-Way ANOVA) via the F test, testing the difference between means with a t-test, and multiple regression analysis (MRA) to examine the relationship between variables. For qualitative data, the interview data was analyzed using content analysis, which is the interpretation of text and categorization according to key points. To obtain in-depth findings and policy recommendations that are sensible and applicable in the context of Bangkok.

RESULTS

The personal attributes of private vehicle drivers, bus drivers, and public transportation users in Bangkok who completed the questionnaire indicated that the majority were female, aged 30 to 40 years, possessed a bachelor's degree, were employed in the private sector, and had a family monthly income exceeding 30,000 baht.

A comparative analysis of means and standard deviations concerning awareness of vehicular air pollution among private vehicle drivers, bus drivers, and public transportation users in Bangkok, involving a total sample of 402 respondents, indicated that overall awareness was high (M=3.84, S.D.=.669). Upon analyzing individual components, the highest mean was observed in knowledge and understanding of air pollution, with a high level of awareness (=4.02, S.D.=.694), whereas the lowest mean pertained to knowledge and understanding of air pollution control measures, which also exhibited a high level of awareness (=3.67, S.D.=.782).

A study including 402 individuals in Bangkok examined the means and standard deviations regarding their acceptance of measures aimed at reducing vehicular air pollution. The findings indicated that the overall acceptance was elevated (=3.76, S.D.=.692). Upon analysis of individual components, the greatest mean was observed in fines, with a high level of acceptance (=3.82, S.D.=.755), whereas the lowest mean was recorded for low-interest loans, which also maintained a high level of acceptability (=3.73, S.D.=.805). It is significant that low-interest loans and subsidies exhibited same means, while low-interest loans have shown a lower standard deviation compared to subsidies.

The comprehensive research indicated that gender and age were not key determinants influencing the acceptance of air pollution control measures. Nonetheless, educational attainment, profession, and income were substantial determinants. The research indicated that

variations in educational attainment, profession, and income may lead to markedly varied levels of acceptance of measurements at the statistical significance thresholds of .01 and .05.

Multiple regression analysis revealed that the four awareness criteria collectively accounted for 61.2% (adjusted R^2 = .612) of the variance in the overall adoption of vehicle air pollution control measures in Bangkok. Knowledge and understanding of air pollution, attitudes towards air pollution, knowledge and understanding of air pollution control measures, and attitudes regarding the implementation of such measures significantly influenced the acceptance of vehicular air pollution control measures in Bangkok at statistical significance levels of .01 and .05. In assessing the influence of independent variables on the acceptance of vehicular air pollution control measures in Bangkok, attitudes towards the implementation of such measures held the greatest weight (beta = .335), followed by knowledge and understanding of air pollution control measures (beta = .304), whereas knowledge and understanding of air pollution had the least weight (beta = .124).

Comprehensive Management Strategies for Mitigating Vehicular Air Pollution in Bangkok

The comprehensive management strategy for mitigating vehicular air pollution in Bangkok should include eight methodologies as outlined below:

Approach 1 Advocating for electric vehicles and clean energy technologies to achieve sustainable air pollution mitigation. This strategy emphasizes expediting the shift from fossil fuel vehicles to electric vehicles (EVs) and clean energy technologies via economic incentives, including tax reductions, subsidies, and financial assistance, to enhance public accessibility to EVs, alongside the establishment of adequate infrastructure, such as charging stations.

Approach 2 Utilizing artificial intelligence (AI) and big data for efficient air quality monitoring and management Artificial intelligence and big data technology can assess pollution trends, predict air quality, and develop more effective pollution management strategies. Intelligent air quality sensor networks enable the government to monitor pollution levels in real-time and utilize this information to formulate suitable policies or regulatory measures.

Approach 3 Implementing rigorous emission rules in accordance with international benchmarks, such as Euro 6, to regulate air quality. Emission regulations such as Euro 6 set limits on car emissions, effectively mitigating pollution from combustion engines. This strategy necessitates stringent regulation and legal enforcement, coupled with assistance for residents migrating to electric vehicles.

Approach 4 Creating high-quality, efficient, and cost-effective sustainable energy mass transit systems via the PDCA management methodology Enhancing mass transport networks, including electric trains and clean energy buses, diminishes the prevalence of polluting private vehicles. This methodology necessitates development planning utilizing the PDCA (Plan-Do-Check-Act) framework to perpetually enhance the efficiency and accessibility of public transportation systems, including the establishment of equitable fares to encourage more public utilization of mass transit.

Approach 5 Advocating for and facilitating the shift to clean energy vehicles to enhance environmental and energy sustainability Mitigating air pollution necessitates the implementation of measures that facilitate the transition of drivers to eco-friendly vehicles, such as electric vehicles or other alternative energy vehicles, through incentives including tax reductions, subsidies, and the expansion of charging station infrastructure.

Approach 6 Augmenting public understanding and awareness of air pollution prevention and mitigation This strategy prioritizes public education regarding the effects of air pollution, while fostering awareness and promoting eco-friendly habits through campaigns, educational initiatives, and efficient communication channels.

Approach 7 Forming a unified environmental agency to enhance collaboration across pertinent entities Mitigating pollution necessitates collaboration among pertinent public and private entities. Creating an organization that functions as a hub for information integration, policy planning, and environmental oversight can facilitate more efficient operations.

Approach 8 Formulating law enforcement strategies to enhance efficacy in managing and mitigating air pollution. Legal measures, like heightened fines, stringent punishments, and the

utilization of digital technologies for monitoring vehicle emissions, are essential strategies for effective law enforcement that must be executed in conjunction with additional supportive measures to attain sustainable change.

DISCUSSION AND IMPLICATIONS

The examination of personal attributes of private vehicle operators, bus drivers, and public transit users in Bangkok uncovers distinct characteristics of this demographic. The predominant responders were female, aged 30 to 40 years, with bachelor's degrees, worked in the private sector, and earning household incomes over 30,000 baht monthly. This illustrates the demographic traits of the urban middle-class sample group, which often exhibits elevated levels of environmental awareness and perception. The research conducted by Phadongyang and Boonchunone (2023) revealed that cognitive status and alignment with reference groups influenced individuals' intentions to adopt electric automobiles. This illustrates the impact of higher education and private sector employment on individuals' receptiveness to environmental legislation. Charoenram and Phoochinda (2021) research indicated that communication and public relations about air pollution management measures are inadequate and require enhancement to increase public awareness and compliance with these laws. This aligns with the sample group's elevated propensity to acquire information from online and digital media. Tangpityawet's study (2020) indicates that demographic groups with stable economic conditions and heightened environmental consciousness are more likely to endorse low-carbon city initiatives and air pollution mitigation strategies compared to other demographic groups.

The researcher may assert that the analysis of knowledge regarding vehicular air pollution indicates that individuals in Bangkok are predominantly cognizant of this issue. This illustrates their sentiments toward pollution issues and methods for their mitigation. The mean score for knowledge and understanding of air pollution was the highest, indicating that citizens are aware of its causes and effects. This corresponds with the concept of environmental awareness (Hungerford & Volk, 1990), which underscores that environmental knowledge is essential for fostering conservation practices. Furthermore, perceptions of air pollution and the enforcement of control measures demonstrated elevated awareness, reflecting favorable public inclinations towards the management of these concerns. This aligns with the Theory of Planned Behavior (Ajzen, 1991), which posits that favorable attitudes affect pro-environmental behaviors. Nonetheless, although the knowledge and comprehension of pollution control measures (mean = 3.67) were elevated, they were inferior to other factors. This indicates that more effective campaign communication tactics and explicit information are necessary to enhance public comprehension of air pollution management initiatives.

The investigation indicates that Bangkok people exhibit a strong acceptance of automobile air pollution management methods, with fines garnering the highest level of approval. This indicates that legislation and penalties are effective methods for regulating those who engage in pollution. This aligns with the concept of Command and Control Regulation (Harrington & Morgenstern, 2007), which posits that individuals are more inclined to adhere to regulations when mandated by law. Concurrently, the least favored measure was low-interest loans, albeit at a considerable level, with a lower standard deviation than subsidies, indicating constancy of opinion within the sample group. This tendency corresponds with the notion of market-based instruments (Stavins, 2003), which posits that economic incentives such as loans and subsidies effectively encourage ecologically sustainable practices. The disparity in standard deviations between low-interest loans and subsidies indicates varying perceptions of the accessibility and feasibility of these financial instruments. This indicates that the processes of policy implementation require enhancement for practical use.

The research indicated that gender and age did not significantly affect the adoption of air pollution control measures, although education level, occupation, and income were statistically significant determinants at the .01 and .05 levels. This aligns with the concept of Environmental Concern and Socioeconomic Factors (Dietz et al., 1998), which posits that individuals with greater educational attainment and higher income levels are more likely to endorse environmental policies due to their enhanced comprehension of the impacts of pollution and improved access to

resources that facilitate behavioral change. In addition, the research findings also align with the Value-Belief-Norm Theory (Stern, 2000), which posits that social and economic variables shape environmental attitudes and actions. Consequently, population segments with stable incomes and occupations may perceive the endorsement of environmental initiatives as aligned with their personal values and beliefs, whereas lower-income groups or those with precarious employment may prioritize the economic ramifications of regulatory measures, leading to disparities in their levels of acceptance.

The examination of awareness variables about vehicle air pollution that impact the acceptance of control measures in Bangkok identified four key aspects influencing acceptance. Individuals with greater comprehension of air pollution are more likely to endorse strict penalties, aligning with Ajzen's (1991) Theory of Planned Behavior, which highlights the importance of knowledge in policy compliance. Positive attitudes toward air pollution issues increase support for measures such as pollution taxes, tax abatements, and collaborative initiatives, consistent with Schwartz's (1977) assertion that environmental values shape public policy endorsement. Awareness and understanding of pollution control methods impact acceptance across all strategies, including penalties, economic incentives, and public collaboration, corroborating Stern et al.'s (1999) findings that policy comprehension is critical to public support. Furthermore, perspectives on the implementation of pollution control measures also significantly influence acceptance across strategies, supporting Dietz et al. (2005) hypothesis that favorable views of enforcement practices enhance public backing and adherence to regulations. These findings collectively demonstrate the multifaceted role of awareness and attitudes in shaping public acceptance of pollution mitigation policies in Bangkok.

Policy implications drawn from this research highlight the need for comprehensive, multi-agency collaboration to effectively mitigate vehicular air pollution in Bangkok. Government agencies, particularly the Pollution Control Department, should prioritize updating emission standards to align with international benchmarks, deploy advanced air quality monitoring systems using AI and big data, and strengthen legal enforcement to ensure compliance. Simultaneously, they must support research into new pollution control technologies and alternative clean energy sources. The Department of Land Transport should promote the transition to electric and clean-energy vehicles by tightening vehicle registration standards, offering tax incentives, and subsidizing trade-in programs for older vehicles. Enhanced vehicle inspection protocols and the adjustment of tax policies to discourage high-emission vehicles will also be crucial to encourage cleaner transport options.

Furthermore, the Bangkok Metropolitan Administration must expand clean-energy public transit infrastructure, establish low emission zones, and implement traffic management measures to reduce congestion and emissions in urban centers. Public awareness campaigns, leveraging digital platforms and community initiatives like "Dust Detective," can help build citizen engagement and foster collective responsibility toward reducing pollution. These policy implications underscore the importance of integrated approaches that combine regulatory enforcement, economic incentives, technological innovation, and public participation to create sustainable change. By fostering cooperation among government, industry, and civil society, Bangkok can build a robust, resilient framework for tackling vehicular air pollution that also serves as a model for other rapidly urbanizing cities facing similar environmental challenges.

Managerial implications from this study emphasize the vital role of industry leaders and transit authorities in driving air pollution mitigation efforts. Automotive manufacturers should accelerate the development of clean energy and hybrid vehicles, improve exhaust filtration technologies, and adapt production processes to minimize fossil fuel use and greenhouse gas emissions. Collaborations with government agencies to offer customer incentives, such as tax rebates for low-emission vehicles, will be crucial to stimulate market adoption. Concurrently, the energy sector must expand sustainable infrastructure, including the proliferation of electric vehicle charging stations, advancements in battery technologies, and increased production of biofuels and low-sulfur fuels, while investing in research on alternative energy sources such as hydrogen and solar power. Public transit enterprises also play a significant role by transitioning fleets to electric buses, rigorously enforcing emission inspections, optimizing route planning to

reduce congestion, and incentivizing public transit usage through fare adjustments and enhanced service quality. Together, these strategic managerial initiatives highlight the necessity of cross-sectoral collaboration, technological innovation, and customer-focused incentives to effectively address vehicle-related air pollution and build a sustainable urban transport ecosystem.

The academic implications of this research are multifaceted, offering valuable contributions to the fields of environmental management, urban policy, and behavioral studies. This study bridges the gap between theory and practice by linking public awareness and demographic factors with policy acceptance, supporting theories such as the Theory of Planned Behavior and the Value-Belief-Norm Theory in environmental contexts. It highlights the role of knowledge, attitudes, and perceptions in shaping public acceptance of air pollution control measures, demonstrating how these constructs interact with demographic variables like education, income, and occupation. Furthermore, the integrated management framework proposed here offers a conceptual foundation for future scholarly work on urban environmental governance, showing how technological, legal, economic, and social measures can be combined into coherent strategies. Academically, this research underscores the need for interdisciplinary approaches that merge public policy, environmental psychology, behavioral economics, and technological studies. It also suggests pathways for future inquiry, such as longitudinal studies to examine causal relationships, and experimental designs to assess the impact of specific policy interventions or communication campaigns on public attitudes and behaviors. By providing empirical evidence in the context of a major Southeast Asian metropolis, this study enriches the global literature on air pollution management and serves as a reference point for comparative research in other urban settings facing similar environmental challenges.

LIMITATIONS AND FUTURE RESEARCH POSSIBILITIES

This study acknowledges several limitations that must be considered in interpreting its findings and forming future research directions. Firstly, the quantitative component relied on self-reported data gathered via online questionnaires, which may lead to biases in responses due to social desirability or the respondents' subjective interpretation of questions. Additionally, while the study sampled a diverse group of Bangkok residents, the sample predominantly represented middle-class individuals with higher education and stable incomes, potentially limiting the generalizability of the findings to lower-income or informal sector populations. The qualitative component, based on interviews with 17 experts, though rich in insights, may not encompass the full spectrum of perspectives from other stakeholders, such as small business owners, marginalized communities, or policymakers from additional government agencies. Another limitation is the cross-sectional nature of the study, which prevents the establishment of causal relationships between awareness, demographic factors, and the acceptance of pollution control measures. These factors collectively highlight the necessity of cautious interpretation and the importance of extending future research to fill existing gaps.

Future studies should consider conducting longitudinal research that can trace shifts in public acceptance and awareness over time, particularly in response to policy changes or air quality fluctuations. This approach would enable researchers to examine the causal impacts of government policies, technological advancements, or economic incentives on the adoption of pollution mitigation measures. In addition, incorporating experimental or quasi-experimental designs, such as randomized controlled trials of communication campaigns or policy interventions, could help identify the effectiveness of various strategies aimed at promoting clean energy vehicle adoption and sustainable behaviors. Further research should also broaden the sample to include more diverse socioeconomic groups, residents from peripheral urban areas, and individuals working in informal or gig economies, as their attitudes and constraints may differ significantly from those of the middle-class population studied here. Such research would yield a more nuanced understanding of the social and economic factors influencing pollution control measure acceptance.

Moreover, future studies should investigate the role of digital technologies and artificial intelligence in monitoring air quality and shaping public perceptions and behaviors toward

pollution control measures. Specifically, researchers can examine how real-time data sharing platforms, predictive modeling, and targeted communication through digital channels influence public awareness, trust in institutions, and compliance with regulations. Additionally, interdisciplinary research combining environmental psychology, behavioral economics, and public policy should explore the social and psychological drivers that determine public support and participation in pollution reduction initiatives. This includes studying the impact of message framing, emotional appeals, and community-based campaigns on long-term behavioral change. By addressing these research gaps, scholars and policymakers can develop more effective, equitable, and sustainable strategies to mitigate vehicular air pollution in Bangkok and comparable urban settings.

CONCLUSION

This study shows that people in Bangkok have a high level of awareness of air pollution from vehicles and a high level of acceptance of pollution control measures. It was found that education, occupation, and income are important factors affecting the acceptance of pollution control measures, while gender and age have no significant effects. The research also reveals that knowledge about air pollution, attitudes toward pollution problems, knowledge about control measures, and attitudes toward pollution control operations all affect the acceptance of control measures. This research proposes eight integrated management strategies to reduce air pollution from vehicles, covering the promotion of clean energy vehicles, the use of AI technology for monitoring, the establishment of strict emission standards, and the development of sustainable mass transit systems. This study makes an important contribution to public policy formulation in dealing with air pollution problems by providing empirical data that can be applied in the context of large cities in developing countries and providing guidelines for the development of effective measures to sustainably reduce air pollution.

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CONFLICTS OF INTEREST

The author declares that there are no conflicts of interest found in this research.

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ENGLISH LANGUAGE PROFICIENCY AND THE EXISTING CHALLENGES FOR PROSPECTIVE ACCOUNTING PROFESSIONALS IN THAILAND

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ABSTRACT

Purpose – This paper aims to raise awareness of difficulties and inconsistencies in the requirements and the process of the English language testing systems used by some universities in Thailand, and to point out the importance of English language proficiency for the accounting professionals in the present-day world.

Body of Knowledge – Since the Higher Education Commission (HEC) of Thailand announced a crucial policy to improve English proficiency standards for higher education students in 2016, all universities in Thailand have already set rules and prescribed their students to fulfill the requirements for English proficiency examination. However, it is rather obvious that the testing requirements of the English language testing systems at the present time are not good and effective as it should be. Thus, when the requirements and the process have been made easier or compromised, the graduates may be underprepared for the workforce and might encounter more challenges at work, especially for accounting professionals.

Implications – Policymakers in both Thai government agencies and universities in Thailand may rely on the information provided in this study to formulate more effective solutions and work on additional long-term plans for improving Thai students' English proficiency. Understanding the flaws of the current English language testing systems will also promote realization and discussion among current and prospective accounting students.

Originality/Value – This paper contributes to literature and practice by demonstrating the major problems of the current English language testing systems. To the best of our knowledge, this article is the first to lay out several common requirements for English proficiency examination and their noticeably wide-ranging test scores used in some universities in Thailand. This fact might indicate that English proficiency standards for higher education students in Thailand may not be improved and good as expected.

Keywords: English language proficiency, English language testing system, Accounting professionals, Higher education commission

Paper Type: Academic Article

INTRODUCTION

Since the beginning of the new globalization, a term used to explain how trade (economy), social, culture, politics, environment, technology, finance, and geography have bound the world together and transformed the world into a more united and interdependent place, the global flows of trade, people, capital, and data including knowledge and know-how have been drastically increasing around the world over the past decades. To go global and to support global business transactions

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and communication, it is obvious that English language is one of the top alternatives. English is the lingua franca of business and academia because it is one of the most important global languages that is spoken both natively and as a second or foreign language by approximately 1.35 billion people (around 17% of the world's population) worldwide (Preply Inc., 2022). It is also specified as the working language of ASEAN. However, from EF English Proficiency Index (EF EPI), the world's largest ranking of countries by the average level of English skills amongst adults, in 2022, Thailand scores 423 out of 800 with global average score: 502. Moreover, Thailand ranks 97th of 111 countries, 21st of 24 countries in Asia and 8th of 9 countries in ASEAN countries without Brunei. The score slightly increased from 2021 and 2022 with a score of 419 (rank 100th of 112 countries) and 423 (rank 89th of 100 countries), respectively. Figure 1 displays the results from EF EPI by each ASEAN countries in 2022 and 2021. Singapore is the best in ASEAN with score of 642 in 2022 and 635 in 2021 and Laos is the worst with score of 364 in 2022 (no record in 2021) (EF Education First Ltd., 2022).

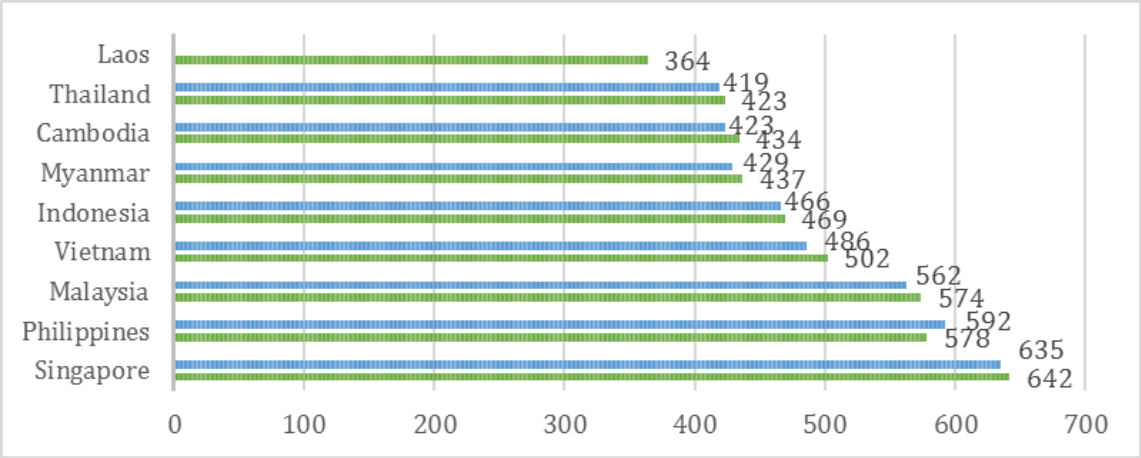

Figure 1. EF EPI by each ASEAN countries in 2022 and 2021

What do these scores mean? It means English proficiency of Thai people is very low. In the group of very low proficiency, people in these countries seriously have limitations with English language. They can only introduce themselves basically, understand simple signs and provide fundamental directions to foreigners. In fact, the EF EPI categorizes the English scores into five proficiency bands, ranging from very high (not less than 600), high (550-559), moderate (500-549), low (450-499) to very low (less than 450). From these results, there is no wonder why the Office of the Basic Education Commission (OBEC) under the supervision of Ministry of Education (MOE), and the Higher Education Commission (HEC) of Thailand under the supervision of Ministry of Higher Education, Science, Research, and Innovation (MHESI) have announced some strategic plans and policies to improve English proficiency standards for all students in both basic and higher education levels in Thailand. In reference to a well-known guideline from Common European Framework of Reference for Languages (CEFR), an international standard for describing achievements of learners of foreign languages worldwide, OBEC expects that students in 6th grade should be at A1-level English proficiency, while students in 9th grade and 12th grade ought to be at A2- and B1-level English proficiency, respectively. In terms of higher education students, HEC issued an announcement that mandates all universities to have some kinds of English tests that must be comparable to CEFR score, to evaluate English proficiency of students before their graduation. Like OBEC, HEC anticipates that higher education students should be at least at B2-level English proficiency. Table 1 below shows the comparison between EF EPI and CEFR with the meaning of each level (Council of Europe, 2023; EF Education First Ltd., 2022).

Table 1. Meaning and the Comparison between EF EPI score and CEFR

EF EPI	Proficiency Bands	Meaning (Partial)	CEFR	Meaning (Partial)
700-800	Very high	✓ Use appropriate language in social situations ✓ Read advanced texts ✓ Negotiate a contract with native English speakers	C2	✓ Can understand everything heard or read ✓ Can summarize information from different sources ✓ Can express oneself spontaneously, very fluently and precisely
600-699			C1	✓ Can understand a wide range of longer texts ✓ Can use language flexibly and effectively for social, academic, and professional purposes
500-599	High (550-599)	✓ Make a good presentation ✓ Understand a newspaper	B2	✓ Can understand the main ideas of complex text ✓ Can interact with native speakers fluently ✓ Can generate detailed text on a wide range of subjects
	Moderate (500-549)	✓ Participate in a meeting ✓ Write professional emails		
400-499	Low (400-499)	✓ Travel through an English-speaking country ✓ Engage in small talk ✓ Understand simple emails	B1	✓ Can understand the main points of familiar matters ✓ Can deal with most situations during travelling ✓ Can describe experiences and events
300-399	Very low (Less than 400)	✓ Introduce oneself basically ✓ Understand simple signs ✓ Give fundamental directions to foreigners	A2	✓ Can understand frequently used expressions ✓ Can communicate in simple and routine tasks
200-299			A1	✓ Can use basic everyday expressions ✓ Can introduce oneself and answer personal questions ✓ Can interact in a simple way while other persons talk slowly
1-199			Pre-A1	N/A

Evidently, from Table 1, with less than 450 score on EF EPI from the past until now, normally, Thai people are ranging from (by excluding Pre-A1) A1- to B1-level English proficiency, and it must be extremely difficult for all levels of educational institutions in Thailand to take some necessary actions to finally meet the expectations of both OBEC and HEC.

IMPORTANTANCE OF ENGLISH PROFICIENCY FOR PROSPECTIVE ACCOUNTING PROFESSIONALS

English language is important for both current and prospective accounting professionals in many

aspects. Firstly, because the IFRS Foundation and International Federation of Accountants (IFAC) use English language as its lingua franca for publications of International Financial Reporting Standards (IFRSs) and International Standards on Auditing (ISAs), respectively, when most countries in the world use IFRSs at least as one of the main Generally Accepted Accounting Principles (GAAPs) for their listed and unlisted companies, ability to understand the English information presented in the standards is indisputably crucial. Some might argue that there are translated versions of IFRSs and ISAs for many countries in the world; however, it is impossible to deny that for many reasons, the original ones are still important. As everyone knows, every translation has limitations, and there is no full equivalence between any two languages. The relationship between the two languages is not simple symmetry. Words in one language may be missing or convey different meanings in another language (Gambier, 2016). This is also true for translations of both IFRSs and ISAs. While the originals (in English version) of the accounting and auditing standards are not naturally easy to understand, this makes the process of translation even more difficult to do. The problems may be composed of translation errors, intentional exploitation in translation for ambiguity of some accounting terms, loss of subtle differences, or the lack of equivalence (Evans, 2018). Therefore, if you have sufficient English proficiency skills, whenever you cannot understand the Thai version of IFRSs, named Thai Financial Reporting Standards (TFRSs), spontaneously, you can go back and study the original ones.

Secondly, nowadays, many well-known domestic and international companies including state enterprises and other government agencies in Thailand require all prospective applicants looking to apply for a lucrative job to be proficient in English language. In fact, the demand for accountants and auditors with sufficient knowledge of English is continuously increasing, and many large or even small companies around the world including BIG 4 (PwC, EY, Deloitte, and KPMG) determine English language proficiency as one of the mandatory requirements for the position of accountants or auditors by requiring all applicants to demonstrate a minimum level of English proficiency before they get hired (Chernysh & Syvak, 2019). Generally, all these companies specify their requirements by using one of the following statements: a) English proficiency will be an added advantage; b) the desired language is English; c) the applicant must have fluency in English communications both verbal and written; d) the applicants must submit one of the standardized English language test scores without minimum score requirements; and e) the applicants must submit the score of the Test of English for International Communication (TOEIC) with the minimum scores ranging from 500 to 850 out of 990 (around B1- to B2-level on CEFR score). When companies, especially those in the stock exchange, willingly need to communicate with foreign investors, customers, suppliers or others, financial statements prepared by accountants and independent auditor's report issued by auditors, must be presented in one of the most famous foreign languages like English. That is the main reason why both accountants and auditors must have sufficient level of English proficiency, especially in writing skill, to work successfully in the transnational world.

Thirdly, since ASEAN Mutual Recognition Arrangement (MRA) on Accountancy Services was signed by all members of the ASEAN countries in 2014, barriers to the free movement of accountancy services were destroyed and chances for accounting professionals to work abroad within the ASEAN countries have substantially increased. To work in other ASEAN member states, a professional accountant must meet the qualifications, practical experience, and conditions, and applies to be an ASEAN Chartered Professional Accountant (ASEAN CPA) at the country of origin first, and after that, when an ASEAN CPA wants to provide professional accountancy services in another ASEAN country, he/she must apply to register as a Registered Foreign Professional Accountant (RFPA) at the host country. Although the processes to apply for ASEAN CPA and RFPA do not mention any requirement for English proficiency test score, it is almost inconceivable to work aboard without sufficient English proficiency skills. As indicated in Table 1, for professional purposes or to work professionally in international environment, generally, the English proficiency score should be at C1-level on CEFR score or at least at B2-level, which is the most demanded level from companies or employers when applicants are required to have a good command of English (Tracktest English, 2023).

Table 2. Comparison of Standardized English Language Test Scores

	CEFR[a]	TOEIC[b]		TOEFL (PBT)[c]	TOEFL (iBT)[b]	TOEFL (CBT)[c]	IELTS[b]	CU-TEP[d]
		Scores	Explanation					
Basic user	A1 (Beginner)	120-220	10-250 (Novice)	-	-	-	-	-
	A2 (Pre-intermediate)	225-545	255-400 (Elementary)	337 (310-343)	(9-18)	57 (33-60)	-	-
Independent user	B1 (Intermediate)	550-780	405-600 (Intermediate) 605-780 (Basic working proficiency)	460 (437-473)	42 (41-52)	140 (123-150)	5.0-5.5	60-90
	B2 (Upper-intermediate)	785-940	785-900 (Advanced working proficiency)	543 (513-547)	72 (65-78)	207 (183-210)	6.0-6.5	100
Proficient user	C1 (Advanced)	945-990	905-990 (Professional proficiency)	627 (590-637)	96 (96-110)	265 (243-270)	7.0	120
	C2 (Proficiency)	-	-	(640-677)	114 118-120	(273-300)	8.0-8.5 9	-

Source: [a] Really Learn English (2023); [b] Educational Testing Service Global (2022); [c] Educational Testing Service (2005) and [d] Cooperate in Academic Programs (2023)

COMMON REQUIREMENTS OF ENGLISH PROFICIENCY SCORES FOR GENERAL HIGHER EDUCATION STUDENTS

Since the announcement of HEC in 2016, most universities in Thailand have published some requirements regarding English proficiency test for their higher education students. Normally, universities allow students to submit some specific kinds of standardized English language test scores such as the Common European Framework of Reference for Languages (CEFR), the Test of English for International Communication (TOEIC), the Test of English as a Foreign Language (TOEFL), the International English Language Testing System exam (IELTS), Chulalongkorn University Test of English Proficiency (CU-TEP) or any other university English language test. Furthermore, they set minimum scores for each kind of the acceptable tests to acknowledge students' achievement and satisfactory level of English. Table 2 presents the comparison among some of the standardized English language test scores. For example, if a university requires students to take an English proficiency test and get English scores at least at B1-level on the CEFR, students can choose to submit either TOEIC score of 550-990, paper-based TOEFL (TOEFL PBT) score of 437-677, internet-based TOEFL (TOEFL iBT) score of 41-120, computer-based TOEFL (TOEFL CBT) score of 123-300, IELTS score of 5.0-9.0, or CU-TEP score of 60-120.

Table 3. Common Requirements of English Proficiency Scores for General Higher Education Students

Standardized Tests	SDU[a]	MU[b]	RSU[c]	KMUTT[d]	SUT[e]	PSU[f]	PNU[g]
	Test scores must not be less than the attained scores presented below.						
CEFR	B2	B2	B2	B1	A2	-	A2
TOEIC	785	600	550	540	400	550	225-545
TOEFL (Paper-based)	-	-	500	460	337	450	337-457
TOEFL (Internet-based)	72	64	61	42	30	-	30-40
TOEFL (Computer-based)	-	-	173	-	93	-	-
IELTS	6.0	5.0	5.0	4.0	3.0	5.0	2.5-3.5
CU-TEP	70	-	60	-	-	-	14-34
Announcement Year	2024	2023	2024	2021	2022	2024	2020

Table 3. (Cont.)

Standardized Tests	SDU[a]	MU[b]	RSU[c]	KMUTT[d]	SUT[e]	PSU[f]	PNU[g]
	Test scores must not be less than the attained scores presented below.						
Other tests such as university English language test	-	84 Mahidol University English Language Test (MU-ELT)	65 (RSU-PET)	3.5 Test of English for Thai Engineers and Technologists (TETET)	-	56 (PSU-Test)	40-50 (PNU-Test)

Standardized Tests	SSRU[h]	DRU[i]	VRU[j]	TRU[k]	RMU[l]	SRU[m]
	Test scores must not be less than the attained scores presented below.					
CEFR	B1	B1	B2	B1	B1	B1
TOEIC	500	550	785	400	550	550
TOEFL (Paper-based)	450	-	543	437	-	-
TOEFL (Internet-based)	-	-	72	41	42	42
TOEFL (Computer-based)	-	-	-	123	-	-
IELTS	4.5	-	6.0	4.0	4.0	4.5
CU-TEP	60	-	70	50	60	70
Other tests such as university English language test	500 (TU-GET) 60 (SSRU-TEP)	41 (DRU Test)	80 (VRU-TEP)	70 (TRU-EPT)	500 (TU-GET) 550 (RMU-UET)	550 (TU-GET) 60 (SRU-Test)
Announcement Year	2021	2022	2024	2020	2021	2021

Standardized Tests	RMUTSB[n]	RMUTK[o]	LRU[p]	PCRU[q]	ARU[r]	PSRU[s]
	Test scores must not be less than the attained scores presented below.					
CEFR	A2	-	B1	B1	B1	B1
TOEIC	225-545	405	380	326	400	255
TOEFL (Paper-based)	-	437	-	394	460	347
TOEFL (Internet-based)	-	41	30	30	29	19
TOEFL (Computer-based)	-	123	-	-	-	63
IELTS	-	4.0	3	3.0	3.5	2.0
CU-TEP	14-34	60	35	35	45	-
Other tests such as university English language test	120-139 (Cambridge English) 21-40 (Oxford Online Placement Test)	-	B1 (Cambridge English, Oxford Online, or English Discovery Placement Test)	-	400 (TU-GET)	-
Announcement Year	2023	2021	2021	2020	2020	2020

Source: [a] Suan Dusit University (2024); [b] Mahidol University (2023); [c] Rangsit University (2024); [d] King Mongkut's University of Technology Thonburi (2021); [e] Suranaree University of Technology (2022); [f] Prince of Songkla University (2024); [g] Princess of Naradhiwas University (2020); [h] Suan Sunandha Rajabhat University (2021); [i] Dhonburi Rajabhat University (2022); [j] Valaya Alongkorn Rajabhat University under the Royal Patronage (2024); [k] Thepsatri Rajabhat University (2020); [l] Rajabhat Maha Sarakham University (2021); [m] Suratthani Rajabhat University (2021); [n] Rajamangala University of Technology Suvarnabhumi (2023); [o] Rajamangala University of Technology Krungthep (2021); [p] Loei Rajabhat University (2021); [q] Phetchabun Rajabhat University (2020), [r] Phra Nakhon Si Ayutthaya Rajabhat University (2020) and [s] Pibulsongkram Rajabhat University (2020)

The information of some common requirements of English proficiency scores for higher education students from some universities in Thailand are revealed in Table 3. Overall, to fulfill universities'

requirements, students must score up to some points on each type of the English tests. Particularly, students must get the attained scores ranging from level A2 to B2 on CEFR, from 225 to 785 on TOEIC, from 337 to 543 on TOEFL PBT, from 19 to 72 on TOEFL iBT, from 63 to 123 on TOEFL CBT, from 2.0 to 6.0 on IELTS, from 14 to 70 on CU-TEP and from 3.5 to 550 on specific university English language tests or any other English test. From this information, it is obvious that many universities in Thailand have established the English criteria below the HEC's expectation (at B2-level English proficiency) and have set the equivalent English scores much lower than the normal guidelines as shown in Table 2. Nevertheless, it can be understandable if we use information from EF EPI and try to estimate the average English proficiency level of Thai people. B2 level might be next to impossible for many higher education students in Thailand, while B1 level is a bit difficult but still possible, and A2 level is highly likely. Setting the criteria too high might not be a good idea, but setting it too low should not be a good solution for the future of these students and the entire country either. In the end, it is important and necessary to clarify that other universities not included in the table might have different criteria, and as time passes by, the stated minimum requirements from the universities presented above might be changed too.

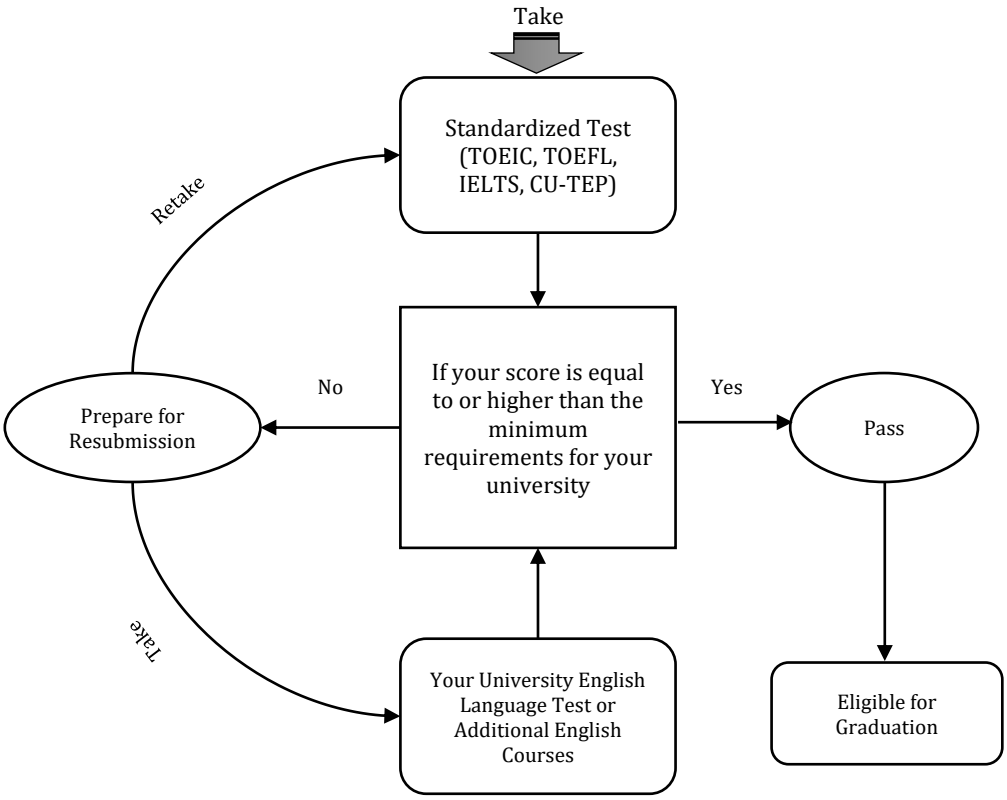

Figure 2. English Language Testing Process

ENGLISH LANGUAGE TESTING SYSTEM AND PROCESS

Like English language proficiency requirements, English language testing systems and processes relatively differ among universities in Thailand. However, generally, to meet the criteria for graduation purpose, higher education students must complete the following four key steps: Step 1: Students register and take an approved English proficiency test that might be one of the standardized tests such as CEFR, TOEIC, TOEFL, IELTS and CU-TEP, or other specific university tests; Step 2: If students' English proficiency test scores are not less than the universities' minimum requirements, these scores can be directly submitted to the universities and it will be considered that the English criteria for graduation have been already met; Step 3: If students' English proficiency test scores are less than the universities' minimum requirements, students must retake an acceptable English test and resubmit their scores again till they pass the minimum

requirements; or Step 4: Alternatively, students might choose to take some English courses/programs/seminars and pass some particular rules or standards of each university. The general process of English language testing system is displayed in Figure 2.

THE EXISTING CHALLENGES

There are many ongoing problems that should be concerned both from the requirements of English language proficiency and from the process of English language testing system. Firstly, while submitting English proficiency scores is not a mandatory for educational institutions under the supervision of OBEC (elementary schools, middle schools, and high schools), the expectations of A1-level English proficiency for students in 6th grade, A2-level English proficiency for students in 9th grade, and B1-level English proficiency for students in 12th grade are hardly achieved. When many high school students have very low level of English proficiency, the possibility to pass the English proficiency conditions in universities is going to be extremely low too. Mastering in English requires the mastering of the four crucial skills, which are reading, writing, speaking, and listening. When all these skills must be accumulated over time, demanding only higher education students to pass the required English criteria within four years (on average) when they have never been forced to take any standardized English tests before, and their current English levels are only at A1- or A2-level on CEFR, has caused a lot of significant difficulties to universities from the past until now.

Secondly, unlike what expected by HEC (B2-level English proficiency), most universities, especially those outside Bangkok metropolitan region, set minimum English requirements lower than B2 level on the CEFR which is equivalent to less than: 785 on TOEIC, 543 on TOEFL PBT, 72 on TOEFL iBT, 207 on TOEFL CBT, from 6.0 to 6.5 on IELTS and 100 on CU-TEP. In fact, some universities set the standards with B1-level English proficiency in mind which is not too far away from the HEC target; nevertheless, others set the criteria at A2 level, which is extremely low, and can easily be seen that at this level of English proficiency, students will not have enough English competency for any basic work situation. Setting requirements with (too) low attained English scores might be good for graduation purpose, but definitely, not for real-life work situations that need professional, advanced working or even basic working English proficiency. The question is if the main purpose of HEC is to improve English proficiency of higher education students to the level that is applicable or capable of working independently and successfully, it might be the time that many universities must reconsider about their current minimum requirements, and at least, change them to the level that is expected by HEC or required by some prominent companies in Thailand.

Thirdly, allowing students to take some English courses/programs/seminars and pass some additional rules or standards of each university might cause some serious problems when passing the specific standards of these alternative English courses cannot be comparable to those normal requirements. For example, after finishing the extra English courses, some universities require students to take a standardized English test for the second time, but this time, there is no minimum score requirement. That means students who finish these English courses and retake a standardized English test will meet the universities' English proficiency requirements automatically. It is not difficult to presume that in fact, these students are not at the required English levels as determined by their universities.

Fourthly, allowing students to submit universities' English proficiency scores that helps increase the chance for students to pass the English requirements, can lead to another problem. In case that students want to apply for a job in some famous companies or want to further their study in some leading universities, the required English proficiency test scores mostly are limited to some standardized English tests such as TOEIC, TOEFL and CU-TEP. Taking an English test that might not be recognized and accepted by most outsiders such as companies, government agencies or other universities, it seems like a waste of money and time when the benefits of these universities English tests are very limited.

Finally, it is certain that there are some costs concerning English tests and English courses/programs/seminars. When many higher education students do not have enough money

to pay for their tuition fees, and must apply for some student loans, it is easy to predict that some of these students might confront with their familiar circumstances, the lack of money. The standardized English proficiency tests are different in their costs. Table 4 below shows the costs of some English proficiency tests. Depending on what the tests students want to take, the costs vary from 400 Baht to nearly 7,000 Baht. If students must retest the English proficiency tests for many times to meet their universities' criteria, the accumulated cost must be (fairly) high.

Table 4 Cost of English Proficiency Tests

Type of Tests	Costs (Baht)
CEFR	400[b]
TOEIC (Listening and Reading) (Personal)	1,800[a]
TOEIC (Listening and Reading) (Educational Institutions)	1,200[a]
TOEFL (Paper-based)	Approximately 1,800[a]
TOEFL (Internet-based)	Approximately 6,000[a]
TOEFL (Computer-based)	Cancelled
IELTS (Academic/General Training)	6,900[a]
CU-TEP (General)	900[a]
TU GET (Paper-based)	500[d]
TU GET (Computer-based)	1,000[d]
Other university English Tests: MU-ELT	400[c]

Source: [a]Chula Tutor (2023), [b]Dataxet Limited (2022), [c]Mahidol Tutor Home (2018) and [d]Language Institute, Thammasat University (2022)

IMPLICATIONS AND FUTURE RESEARCH POSSIBILITIES

This study provides crucial information about the current English language testing process for higher education students to raise awareness of difficulties and gaps in the process of the English language testing systems used by some universities in Thailand. By using information provided in this paper, Thai government agencies such as MOE and MHESI, could pay more attention to the current loopholes and work on additional implementation of long-term strategies to improve Thai students' English proficiency. Moreover, universities in Thailand could be aware of the problem and should find some more efficient ways to assess their students' English proficiency and solve their current problems as soon as possible. Ultimately, the current and prospective accounting students have a chance to know about some weaknesses of the current systems that might hinder their success when they enter the professional world.

For future research, the further studies should consider conducting 1) qualitative research by using focus groups or in-depth interviews to gather more insight into students' opinions on the current state of the English proficiency process in Thailand and 2) survey research by collecting students' actual TOEIC scores from different universities in Thailand and analyze similarities and differences among them.

CONCLUSION

The purposes of this paper are to 1) raise some concerns on English proficiency requirements and processes of the English language testing systems used by some universities in Thailand, and 2) highlight the importance of English language proficiency for accounting professionals. Referring to the results of English proficiency from the EF English Proficiency Index (EF EPI), there is no question why the Higher Education Commission (HEC) of Thailand under the supervision of Ministry of Higher Education, Science, Research, and Innovation (MHESI) has announced a policy to improve English proficiency standards for higher education students in 2016. Since then, all universities in Thailand have set some English proficiency requirements and required their students to submit one of those standardized English language test scores such as CEFR, TOEIC, TOEFL PBT, TOEFL iBT, TOEFL CBT, IELTS, CU-TEP, university English tests or any other English test to universities before graduation. Overall, information of the universities presented in this paper showed that the attained English scores of each university range from

level A2 to B2 on CEFR, from 225 to 600 on TOEIC, from 337 to 477 on TOEFL PBT, from 19 to 64 on TOEFL iBT, from 63 to 153 on TOEFL CBT, from 2.0 to 5.0 on IELTS, from 14 to 70 on CU-TEP and from 3.5 to 550 on specific university English language tests or any other English test. Nevertheless, most of these English levels are not sufficient for working in international or professional environments.

From the beginning, the intention to improve English proficiency of higher education students in Thailand is good or even great. Even when the HEC released the new announcement to improve English proficiency standards for higher education students in 2024 recommending all universities in Thailand to set minimum English requirements for undergraduate students to be not less than B2 level on the CEFR which is equivalent to 785 on TOEIC, 72 on TOEFL iBT, from 6.0 to 6.5 on IELTS and from 70 to 98 on CU-TEP (Higher Education Commission, 2024; Suan Dusit University, 2024), the processes designed by many universities to achieve the HEC previous and current targets might not be efficient enough. With many existing problems such as 1) the omission for elementary, middle, and high school students to submit English proficiency test scores before graduation in each education level, 2) the too low required attained English scores, and 3) other additional conditions trying to help students out by providing either additional English training programs or English courses that students might pass eventually despite the lack of proficiency in English language, it is certain that many higher education students in Thailand do not have sufficient English proficiency for professional work. While more and more businesses operate on global scale, current and prospective accounting professionals undoubtedly need English proficiency skills now more than ever before. Lack of English proficiency skill might make working lives miserable. It will obstruct employment opportunities, reduce chances of promotions, as well as be an academic barrier to higher education.

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CONFLICTS OF INTEREST

All authors declare that there are no conflicts of interest found in this research.

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IMPLICATION OF RISK-AS-FEELING IN SELECTION AND RECRUITMENT DECISION-MAKING FOR RECRUITERS AND HIRING MANAGERS

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ABSTRACT

Purpose – This article investigates the role of the Risk-as-Feeling (RaF) theory in shaping decision-making during recruitment and selection processes. It highlights the emotional and psychological factors influencing recruiters and hiring managers and their implications for fairness and inclusivity in hiring practices.

Body of knowledge – The article draws on the Risk-as-Feeling theory, which suggests that emotional responses significantly shape risk perception and decision-making. It identifies key subjective factors—such as cognitive biases, emotional influences, cultural norms, past experiences, and the role of technology—that impact hiring decisions. By synthesizing findings from behavioral economics, psychology, and HR studies, the article explains how these factors can lead to biased recruitment outcomes, including discrimination based on gender, race, and other attributes. It also explores the dual role of AI in amplifying or mitigating biases in recruitment processes.

Implications – Understanding the influence of emotions and biases in hiring decisions can help recruiters make more informed, equitable, and effective choices. Practical benefits include adopting structured hiring practices, transparency in decision-making, and ethical integration of AI tools to reduce bias. These strategies support diversity and inclusion, improving organizational outcomes and candidates' experiences.

Originality/Value – This article is among the first to apply the Risk-as-Feeling theory to recruitment and selection, bridging insights from behavioral economics and human resource management. It provides a novel perspective on the emotional underpinnings of hiring decisions and offers actionable strategies to address bias, contributing to academic discourse and practical improvements in HR practices.

Keywords: Decision making, Human resources management (HRM), Selection, Recruitment, Diversity and inclusion, Risk as Feeling (RaF), Artificial intelligence (AI)

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INTRODUCTION

Every day, each of us makes many choices. In doing so, we draw upon the experiences, insights, and habits we gleaned from childhood, education, exposure to various encounters, and personal and professional life (Erev et al., 2022; Weber & Johnson, 2006). Numerous authors concur that individuals are inclined to choose options that previously resulted in the most favorable outcomes in comparable situations (Plonsky et al., 2015; Chater et al., 2020). However, similar situations retrieved from memory may partially depend on the new samples or experiences encountered (Erev et al., 2022). Additionally, Weber and Johnson (2006) suggest that decisions are shaped by retrieving relevant knowledge from memory, encompassing information from both

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past identical and similar situations. This highlights that our choices are frequently guided by prior experiences stored in memory. Most of the time, we make choices without even being aware. Research indicates that many of our daily decisions are unconsciously influenced by inherent biases. These unconscious biases can significantly impact recruitment and promotion processes (Whysall, 2018), leading to less diverse and inclusive workplaces. For instance, affinity bias causes individuals to favor others like themselves, resulting in homogenous teams and perpetuating existing power structures (Carnahan & Moore, 2023). Furthermore, confirmation bias leads recruiters to seek information that confirms their pre-existing beliefs, potentially overlooking qualified candidates who do not fit their initial expectations (Kleinberg & Raghavan, 2018; Whysall, 2018). Addressing these biases is crucial, as they can hinder diversity efforts and prevent organizations from leveraging the full potential of a varied workforce.

Many companies have begun prioritizing the creation of inclusive settings that cherish diversity to enhance their reputations (Collins, 2011; Wilton et al., 2018). Studies have explored how gender diversity influences crucial organizational results, such as employee turnover, overall performance (Williams & O'Reilly, 1998) increase innovation, productivity, and employee performance (Singha & Prakasam, 2021). However, there is a risk that biases will affect these processes and undermine efforts to create a diverse and inclusive workplace. Recognizing and addressing these biases is essential for a more equitable selection, recruitment, and promotion process (Kleinberg & Raghavan, 2018; Tomislav, 2018; Whysall, 2018). Therefore, some companies work hard to reduce these biases; for instance, some try to widen their applicant pools by using blind resume screening. In contrast, others started integrating AI technologies and other solutions provided to companies (Drage & Mackereth, 2022; Mujtaba & Mahapatra, 2024; Yarger et al., 2020)

Discrimination in the labor market, including in the personnel selection process, can have negative consequences for society as a whole and individual enterprises. Inequality in the selection process can create unfair advantages and lead to a lack of motivation, stress, and reduced self-esteem among workers, resulting in lower productivity (Kumari & Saran, 2023; Elvira & Town, 2001) and competitiveness and reputation for the enterprise (Wilton et al., 2018). Companies must strive for fairness and equality in the selection process to create a healthy and productive work environment (Krinitcyna & Menshikova, 2015; Williams & O'Reilly, 1998).

Kroll et al. (2021) found that modern recruitment methods, such as active sourcing and external agencies, often perpetuate discrimination against marginalized groups, including women, older workers, and those from Southern/Eastern Europe. Biases stem from recruiters' attitudes, managerial instructions, and assumptions, highlighting gaps in legal protections against discrimination. Similarly, Moss-Racusin et al.'s (2012) study of 127 science faculty members found significant gender bias in hiring decisions for a laboratory manager role. Male applicants were rated more competent, hireable, and deserving of higher salaries and mentorship opportunities than identical female applicants. Both male and female faculty showed similar biases, influenced by subtle preexisting gender biases. These findings underline the systemic bias in academic hiring and the need for equitable recruitment practices. Researchers from Princeton University and Harvard University demonstrated that blind auditions for orchestras significantly increased women's chances of advancing through the first round, doubling their likelihood of success. These findings underscore the critical need to address unconscious biases and implement strategies like blind evaluations to ensure fair and inclusive hiring processes. These examples from the literature illustrate how feelings, past experiences, culture, and unconscious biases can impact the recruitment process (Goldin & Cecilia, 2000).

This research aims to review the selection and recruitment process design that considers subjective elements in the context of the risk-as-feeling hypothesis. While this model has primarily been used to understand risky decisions, the underlying concept can be applied to any decision, regardless of whether it involves risks. Most theories of riskless choices, such as multi-attribute utility theories, assume that decisions are made to optimize the utility of future outcomes (Loewenstein et al., 2001). This review examines the subjective factors that may affect recruiters and hiring managers during the selection, recruitment process, and job matching.

LITERATURE REVIEW

It is common practice to use one's experience with both successes and setbacks to inform future decision-making. When a specific action results in a favorable outcome, it may be sensible to repeat it. Meanwhile, when it has a negative impact, it may be best to refrain from retaking it. This kind of stay-or-go approach can be effective in cooperative behavior (Nowak & Sigmund, 1993). However, like humans, animals often use strategies based on past successes and failures, even when doing so would be irrational and hurt performance. In the game of "rock scissors paper," for instance, human subjects frequently employ the success-stay/fail-switch tactic (Wang et al., 2014), and monkeys perform similarly to humans on the "pennies-matching" task (Barraclough et al., 2004). Studying history can heighten our perception of the decision-making context, illuminate the costs and benefits of alternative courses of action, and increase our respect for the dizzying complexity of life (Mukharji & Zeckhauser, 2019). Risk in organizational activities typically pertains to the potential for failure in executed tasks. Specifically, it involves events that are external to the operations of the entity involved, which are often unpredictable and, therefore, not easily preventable (Sobocka-Szczapa, 2021).

Risk-as-Feeling (RaF) Theory Explained

Behavioral economist and professor at Carnegie Mellon University George Loewenstein introduced the concept of "risk as feelings (RaF)." As argued by Loewenstein, risk perceptions are driven more by people's emotional reactions to potential outcomes than by any objective evaluation of the likelihood of those outcomes occurring. Loewenstein and his co-authors wrote an article for Science in 2001 to elaborate on this idea. "The likelihood of an event occurring, the magnitude of its consequences, and the degree to which it is manageable are all aspects of the multifaceted concept known as risk. However, a significant discrepancy exists between how people perceive risk and how an event's probability, severity, or manageability is measured. Instead, they let their feelings about the risk shape their judgments and decisions, which can introduce biases and errors." (Loewenstein et al., 2001).

One behavioral model that specifically addresses the consequences of ambivalence resulting from conflicting information from two different information acquisition systems is the RaF hypothesis (Loewenstein et al., 2001). This perspective has been applied in models that predict action selection in psychological risk-return models (Weber et al., 2009; Weber et al., 2005). The RAF model suggests that when such tension arises, behavior is driven by anticipatory feelings, such as those experienced during decision-making, and includes variables commonly accounted for by the intentional/analytical system. The model also suggests that the affective/intuitive system may override cognitive evaluations in conflict (Kobbeltved & Wolff, 2009).

The central premise of this theory is that people's perceptions of risk are often inaccurate because they are not based on objective measures of probability, severity, or controllability. In contrast to more general aspects of behavioral economics like biases, heuristics, or nudges, the "risk as feelings" theory isolates the role of emotions in risk perception and decision-making (Loewenstein et al., 2001). Kahneman and Tversky's prospect theory is one such example of a theory in behavioral economics that seeks to explain how individuals make decisions in the face of risk and uncertainty by focusing on the subjective value they attribute to various outcomes rather than the objective likelihood of their occurrence. Compared to other behavioral economics theories, the "risk as feelings" theory stands out because it suggests that people's perceptions of risk may be affected by their emotional states or moods when making a decision. The framing effect is another theory from behavioral economics that Kahneman and Tversky proposed; it places more emphasis on the presentation of information to the decision maker than on the decision maker's subjective states or emotions. (Kahneman & Tversky, 1979).

Loewenstein et al. (2001) propose two explanations for the discrepancy between subjective experiences and objective risk assessments. Firstly, cognitive evaluations of riskiness and emotional responses to those evaluations differ, which are the two central input variables in cognitive consequentialist accounts of risk perception and behavior. Secondly, circumstances have a more significant impact on our feelings than on our rational judgments. Nonconsequential

aspects of decision outcomes, such as their vividness or the associations they evoke, and evolutionary preparedness for specific emotional reactions also play a role.

Furthermore, when viewed through the lens of consequentialist models like the expected utility model, risk-taking behavior often appears to be highly variable and inconsistent across domains and situations (MacCrimmon & Wehrung, 1986; Schoemaker, 1990). For example, Barsky et al. (1997) divided participants in the Health and Retirement Survey (a large-scale panel study of older Americans) into four categories of risk tolerance based on their responses to three questions designed to gauge their level of risk aversion in hypothetical situations involving a job change. They found that the resulting risk tolerance scale had a weak relationship to other risky actions such as drinking, smoking, and financial choices. Similarly, Weber et al. (2002) found self-reported risk-taking about financial, health, social, ethical, and recreational decisions to have weak correlations. The risk-as-feelings hypothesis helps explain the content- and context-specificity of risk-taking. It can help explain why risk-taking behavior varies across different situations and domains, as it identifies factors in a given situation that may influence risk-taking in ways that consequentialist models would not predict.

There is a pressing need for a rating system to detect and quantify individual risk perception differences. Decisions involving risk and uncertainty, whether at work or in one's personal life, are difficult for everyone to tackle in the same way. Variations of intolerance for risk are frequently used to characterize or explain these distinctions. A person's ostensible risk tolerance is a significant factor in the selection process.

Rational Decision-Making Model

According to classical analysis, rational decision-making is based on the concept of expected utility, which means that people are entirely rational when making decisions (Zhang et al., 2023). As articulated in scholarly works (e.g., Kobiyh & Amri, 2024; Zhang et al., 2023), it represents a structured, sequential methodology designed to optimize rationality by systematically evaluating alternatives through empirical outcomes. Unlike the RaF model, which integrates emotional and psychological dimensions, the Rational Decision-Making model strictly adheres to logical and structured decision-making processes, potentially overlooking the nuanced emotional factors that influence hiring decisions. This framework typically encompasses stages including problem identification, data collection, comparative analysis of options, and selecting an optimal choice predicated on available evidence. This standard paradigm assumes that the logic of self-interest guides the agents and has all the information they need to decide (Favereau, 1989; Kobiyh & Amri, 2024; Todd & Gigerenzer, 2003). Central to this model are the assumptions of absolute rationality, unrestricted access to information, and the capacity for impartial evaluation of potential consequences. However, critiques within the literature underscore the infrequency of such ideal conditions in practical settings, resulting in decisions that often diverge from the theoretical tenets of perfect rationality (e.g., Kobiyh & Amri, 2024; Zhang et al., 2023).

Within the recruitment and selection domain, the Rational Decision-Making Model application posits that hiring processes should rely on empirical data and systematic evaluation to align candidates with organizational objectives. A critical limitation of this approach, however, lies in its presumption of comprehensive candidate insights—a condition seldom attainable in practice. Decision-makers, such as hiring managers, frequently operate under informational constraints, thereby challenging the model's foundational assumption of omniscient rationality.

Bounded Rationality Model

In response to rationality model limitations, scholarship emphasizes the prevalence of Herbert Simon's Bounded Rationality Model. This paradigm acknowledges the inherent constraints faced by decision-makers, including incomplete information, cognitive biases, and temporal pressures (Todd & Gigerenzer, 2003). Consequently, human resource professionals often adopt heuristic strategies to reconcile methodological rigor with pragmatic exigencies. Scholars have shown that decision-makers have various tools in their hiring toolkits—such as cognitive shortcuts, shifting standards, and referrals—deployed under uncertain and constrained conditions (Bills et al., 2017; Nichols et al., 2023; Pedulla, 2014). These cognitive shortcuts, while imperfect, enable

practitioners to navigate complex hiring environments, balancing theoretical ideals with operational realities.

In contrast, the Risk-as-Feeling (RaF) model introduces an additional layer by emphasizing how emotional responses to perceived risks significantly influence decisions. Unlike the Bounded Rationality model, which primarily deals with limitations in cognitive processing capabilities and access to information, the RaF model suggests that decision-makers feelings and emotions can override even the most heuristic or rational approaches when faced with risk-laden decisions. This emotional influence can lead to divergent outcomes in hiring, where a candidate might be favored or disfavored based on the emotional impacts they elicit in the recruiter, independent of their objective qualifications. Thus, while Bounded Rationality seeks to adapt decision-making within cognitive limits, the RaF model argues for the primary role of emotional perceptions in shaping decisions, proposing that these perceptions can often lead to decisions that deviate significantly from what might be predicted by rational or even bounded rational analyses.

One method used to find a suitable employee for a specific position is the "organizational fit." Organizational fit is a crucial selection measure in hiring decisions (Chatman, 1991; Tholen, 2024). Person-organization fit to enhance the recruitment process—essentially attracting and employing candidates who are not only productive but also harmoniously integrate with managers, colleagues, clients, and other stakeholders (Nichols et al., 2023; Tholen, 2024). Most research in business and psychology generally view person-organization fit as a straightforward alignment between an organization's values and culture and the personal attributes of potential employees. Within the framework of modern professional labor markets, the criteria for organizational fit are considered a rational and agreed-upon aspect of the recruitment process, facilitating a mutual match between employers and prospective employees (Tholen, 2024). However, other scholars state that this method does not guarantee objectivity, and it includes subjectivity from the hiring manager's side. For instance, evidence from more sociologically informed studies suggests that including organizational fit criteria can work against certain groups (Pedulla, 2020; McDonald et al., 2021; Nichols et al., 2023; Tholen, 2024).

In their study, Nichols et al. (2023) delve into the nuanced role of "fit" in hiring decisions beyond its conventional usage as straightforward evaluative criteria. Utilizing qualitative methods through in-depth interviews with 53 hiring professionals from various industries, the research highlights how "fit" often serves as a subjective tool to navigate and justify hiring choices that deviate from standard criteria. Key findings suggest that "fit" can avoid typical human capital requirements, enabling hiring managers to prioritize subjective traits such as personality or cultural alignment over concrete skills or qualifications. Additionally, the study exposes the darker side of "fit" as a mechanism that can entrench workplace inequalities by masking biases and discriminatory practices under the guise of cultural congruence. This research underlines the significant impact that subjective hiring criteria can have on organizational diversity and labor market dynamics, revealing that "fit" can often be a double-edged sword in the recruitment process.

Another study by Tholen (2024) shows that the role of organizational fit in hiring practices across various professional fields such as engineering, marketing, and finance is scrutinized for its implications on social bias and exclusion. Conducting semi-structured interviews with 47 external recruitment consultants, Tholen reveals how the subjective application of organizational fit can lead to discriminatory hiring practices. The study demonstrates that while organizational fit is often touted to ensure cultural coherence and enhance workplace productivity, its ambiguous and flexible definition allows it to be exploited as a tool for justifying the exclusion of candidates based on age, race, gender, or cultural differences. This critical exploration challenges the traditional perception of organizational fit as benign. It underscores its role in perpetuating workplace inequalities, offering significant insights into the complexities of hiring processes and the need for more inclusive recruitment practices.

Employers also utilize the Knowledge, Skills, and Abilities (KSA) model, which originates not from educational theory but rather from human resources (Stevens & Campion, 1994; Hlavac, 2023). Wooten (1993) notes, "Job analytic methodology was used to identify knowledge, skill, and ability dimensions of four classes of jobs (secretarial/clerical, managerial/administrative,

professional/technical, and service).” This indicates that the method employs rational analysis to meet the organization's requirements, guiding HR decisions such as selection and training criteria.

In her 2003 study, Athanasaw (2003) explored the effectiveness of cross-functional teams within the public sector, focusing on the relationships between team characteristics and team members' knowledge, skills, and abilities (KSAs). Utilizing a quantitative approach, Athanasaw (2003) collected data through surveys distributed among various public sector employees who were part of cross-functional teams. The study assessed how factors such as the extent of professional experience, the frequency of team participation, the nature of team training, and the methods by which members were assigned to teams (voluntarily, by assignment, or upon request) influenced the overall effectiveness of these teams. Key findings indicated that significant experience and regular team participation were correlated with higher KSA scores, underscoring the value of experience and active engagement in enhancing team performance. Another study by Jim Hlavac examines the re-conceptualization of aptitude through the lens of Knowledge, Skills, and Abilities (KSAs) across multiple stakeholders within the interpreting sector. Utilizing a comparative analysis method, Hlavac engaged with four distinct groups: educational trainers, testing and credentialing authorities, industry organizations, and practicing interpreters, to assess how each group perceives and prioritizes different KSAs. The study revealed varying emphases on specific KSAs, with educational bodies focusing on linguistic skills, while industry stakeholders highlighted the need for business acumen and information and communications technology skills. Common ground was found in the universal valuation of linguistic and interactive skills, though gaps emerged in areas like intercultural skills and ethics. Hlavac's findings suggest a misalignment between training programs and industry needs, indicating a potential shift towards more integrated and holistic training frameworks that better accommodate the diverse KSA requirements voiced by professional stakeholders.

Both models and hiring methods examples discussed for selection and recruitment incorporate elements of rationality in decision-making. However, they demonstrate that while recruiters and hiring managers aim to make objective measurements, the decision-making process inherently includes elements of subjectivity, which will be discussed in the next section.

Risk as Feeling Implication on Selection and Recruitment Decision-Making

To address the limitations of traditional decision-making, which may not always be based on sound, logical, or risk-avoidant policies, protocols, or practices, it is necessary to incorporate more complex and diverse approaches beyond the model of organizational goals and rational decision-making (Harvey et al., 2009). The findings from the study of Harvey et al. (2009) highlight the importance of a wide range of skills for effective global management and decision-making.

The process of selecting individuals to fill job openings or other organizational opportunities is called selection and recruitment decision-making. Identifying the need for a new hire, developing job descriptions and requirements, advertising the position, reviewing resumes and applications, conducting interviews, and making a final decision on whom to hire are all typical steps in this process (Lievens & Chapman, 2010; Salgado, 2017; Schmitt, 2014; Wilkinson, 2019). Successful companies face the challenge of attracting and retaining the best possible workforce. For instance, many authors, including Millmore (2003), Thomas and Ray (2000), Sembiring and Damayanti (2023), and Ibidunni et al. (2016), argue that the ability to attract, hire, retain, and develop the most capable talent is the most challenging yet the important determinant of an organization's strategic effectiveness. Therefore, recruitment impacts the final choice of employees, whose performance significantly influences a company's competitive edge. Employing workers who are not a good fit can adversely affect an organization's output (Sobocka-Szczapa, 2021), which is considered a risk. Organizations need to find the 'right' candidate as quickly and cost-effectively as possible who possesses the necessary skills and experience. This is what Heraty and Morley (2003) call a “right fit.”

Despite the critical role of managers in the hiring process (Sutherland & Wöcke, 2011), research consistently demonstrates that this is the most common area for selection errors. Managers, who ultimately bear the consequences of these mistakes, frequently make them. Many

companies prioritize a flawless hiring image, denying errors, and retaining underperforming employees for too long, hoping for improvement (Buchen, 2007; Tamzid, 2022). This often stems from a mismatch between the expectations of both employers and employees (Blenkinsopp & Zdunczyk, 2005). The losses incurred from hiring an unsuitable employee can be attributed to their limited ability to perform tasks in their assigned role effectively. This typically stems from assessments of the employee's performance outcomes and their adverse effects on the team's dynamics (Sobocka-Szczapa, 2021).

In their study, Wehner et al. (2022) conducted a discrete choice experiment to explore how recruiters' preferences for the Big Five personality traits vary according to different job tasks. The researchers utilized a robust sample of 634 German firms, where recruiters were asked to choose between two hypothetical job candidates across multiple scenarios. Each candidate was characterized by professional competence, their wage expectations, and attributes aligned with the Big Five personality traits—openness, conscientiousness, extraversion, agreeableness, and emotional stability. This setup was strategically designed to simulate accurate hiring decisions, thereby enhancing the study's external validity. By employing a mixed logit model to analyze the data, the research provided nuanced insights into how specific personality traits are preferred for different types of job tasks, such as analytical or interactive tasks, thereby offering valuable guidance for optimizing recruitment strategies based on the nuanced demands of job roles. The key findings revealed that all Big Five traits influenced hiring decisions, with conscientiousness and agreeableness having the most significant positive effects. Additionally, personality preferences varied with job tasks: analytical tasks favored candidates who were more open and conscientious, while interactive tasks preferred candidates who were open, extraverted, and agreeable (Wehner et al., 2022). These findings highlight the strategic importance of considering personality traits in recruitment processes, especially how they align with the specific demands of job roles being filled, which will add more subjectivity to the hiring decision-making process.

Decision-Making Subjective Factors in the Selection and Recruitment Process

Several factors affect decisions, such as personal differences in age and socioeconomic status, as well as a strong sense of one's significance, which play a role, as do memories of the past and a host of cognitive biases. Each of these factors affects the final decision (Dietrich, 2010). Decision-making is a cognitive process that involves the selection of a course of action from a set of alternatives (Christopoulos et al., 2018). Similarly, in the context of human resource selection, the output of this process is the most appropriate candidate. Decision-making can be rational or irrational and based on explicit or implicit assumptions (Timar & Balas, 2007). Based on the literature, Figure 1. illustrates the various factors that influence decision-making in the recruitment and selection process into two main groups: objective factors and subjective factors.

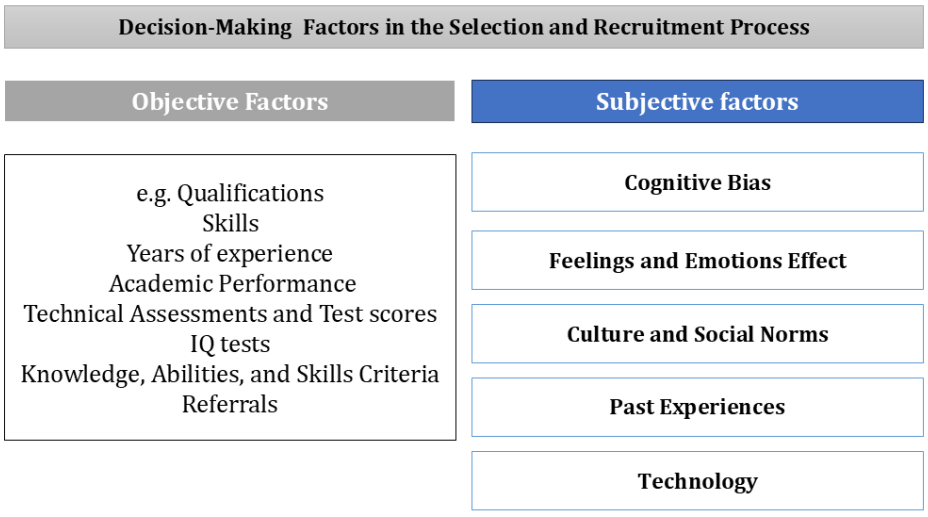

Figure 1. Decision-Making Factors in the Selection and Recruitment Process
Source: Own illustration

For instance, many factors can influence selection and recruitment decision-making, including objective criteria, such as the candidates' qualifications, and subjective criteria, such as the recruiters' preferences and the tendency to hire those that are similar to themselves (Carnahan & Moore, 2023; Elliott & Smith, 2004; Rivera, 2012) that could involve cognitive biases (Tholen, 2024). Some of the critical subjective factors that can affect the hiring manager/recruiter's decision-making include:

1. Cognitive and Personal Biases Effect

Although it is widely recognized that decision-making can be biased, the specific instances of bias and how to identify them are often disputed. This topic can be highly controversial among academics. Commonly debated cognitive biases include confirmation bias (Rottenstreich & Hsee, 2001), premature termination of evidence search, inertia, contrariness or rebelliousness, experiential limitations, selective perception, wishful thinking or optimism, freshness, primacy effect (Rottenstreich & Hsee, 2001), repetition bias, anchoring and adjustment, groupthink, source credibility bias, incremental decision making and escalating commitment, inconsistency, attribution asymmetry, role fulfillment, underestimation of uncertainty and the illusion of control, faulty generalizations, and causal attribution.

Cognitive and personal biases can result in unfair or biased hiring practices, significantly impacting selection and recruitment decision-making. Cognitive and personal biases have been linked to the overrepresentation of some groups and the underrepresentation of others in the workplace (Dipboye & Colella, 2014). Biases, as it is widely acknowledged, can creep into our decision-making processes, calling the correctness of a decision into question. It is widely accepted that biases can influence our decision-making processes and may lead to incorrect decisions (Acciarini et al., 2021; Berthet, 2022). However, there is no consensus on which normative models should be used to determine what constitutes an incorrect decision. Additionally, the scientific evidence for all biases is not universally agreed upon (Rad & Balas, 2007). Research has shown that selection and recruitment decision-making can be influenced by various biases and heuristics, including confirmation bias, the availability heuristic, and the representativeness heuristic (Whysall, 2018). Research has demonstrated that biases and heuristics significantly influence hiring decisions. For instance, Hardy et al. (2021) found that even minor biases in hiring evaluations can lead to substantial consequences, with factors like gender and physical attractiveness often swaying decisions. Moreover, a meta-analysis by Hosoda et al. (2003) highlights that physical attractiveness can heavily influence hiring decisions, causing subjective impressions to overshadow objective qualifications.

In the context of gender discrimination or gap, Alan et al. (2020) found that societal expectations and gender role attitudes significantly contribute to the gender gap in leadership. UNESCO (2018) highlighted the persistent under-representation of women in leadership roles due to gender stereotypes and biases. Additionally, research on gender stereotypes in leadership shows that women often face negative evaluations compared to men, hindering their advancement to leadership positions. Besides, the study of Tremmel and Wahl (2023) on gender stereotypes in leadership shows that women often face negative evaluations compared to men, hindering their advancement to leadership positions. This study analyzes how these stereotypes affect the evaluation of female leaders, demonstrating that women are frequently judged more harshly than their male counterparts, which can impede their career progression. Likewise, study research by McKinsey and Company has found that unconscious biases held by managers, rather than overt sexism, can be a significant obstacle to women's advancement into leadership positions (Barsh & Yee, 2011). Similarly, Hentschel et al. (2019) demonstrated that recruiters associate leadership traits (e.g., assertiveness) with men, penalizing women who display identical behaviors. This “double bind” reduces female candidates’ perceived likability and competence. Nunley et al. (2015) presented experimental findings from a study investigating racial discrimination in the labor market among recent college graduates. Their research, utilizing a correspondence testing approach, revealed significant racial disparities; black candidates received roughly 14% fewer interview invitations than their white counterparts with identical qualifications. The study further indicated that this racial gap in job opportunities widened when comparing applicants whose credentials suggested higher productivity or a better fit for the job.

The analysis primarily suggested that taste-based discrimination was at play, although it could not conclusively eliminate the possibility that employer risk aversion also contributed to these disparities.

Moreover, Thomas and Reimann (2022) examine HR employees' awareness of their susceptibility to bias in recruitment. The study investigates the "bias blind spot" phenomenon, where individuals believe they are less biased than their peers. Using a survey of 234 HR employees in Switzerland, the study measures the bias blind spot across seven biases. The results show that HR employees generally think their colleagues are more prone to bias than they are, with male HR employees having a more significant bias blind spot than females. These findings highlight the role of bias in HR decision-making and suggest ways to improve objectivity in recruitment.

Angelovski et al. (2016) examined the impact of hiring and escalation bias on subjective performance evaluations. Hiring and escalation bias refers to the tendency to favor and continue supporting selected candidates, even with negative performance. Using a laboratory experiment, the study found that evaluators gave higher ratings to candidates they had selected and continued to support them despite poor performance. The bias shifted from favoring recommended employees to being unfavorable towards non-recommended ones, influenced by managers' performance. The findings suggest that hiring and escalation bias can distort employee performance evaluations and affect others in the organization. The authors recommend further research on the strength of escalation bias over time, employee behavior under bias, and the impacts of 360-degree evaluation schemes with incentives.

2. Feelings and Emotions Effect

Throughout the 1990s (Elster, 1996, 1998), other authors investigated emotional and logical processes, seeking to draw an explicit connection between feelings and game theory. Emotions, according to Frank (1988), can aid in resolving crucial commitment problems and thus are of practical interest to economics. Moreover, several other authors, including Myers (1962), Bell (1985), Loomes and Sugden (1986), Mellers et al. (1997, 1999), and Loewenstein et al. (2001), have attempted to incorporate an emotional dimension into their theories of decision making under risk and uncertainty, highlighting the significance of emotions in decision making.

The emotions considered in all of these models are those that are expected to occur. Anticipated feelings are not felt when a decision is made but rather when the outcome is experienced. Grimani et al. (2024) support this concept, stating that while anticipatory and anticipated emotions influence decision-making, anticipated emotions arise when the outcome is realized. Similarly, Mellers and McGraw (2001) explain that people often predict the emotions they might experience due to their choices, using these anticipated emotions to guide their decisions.

However, the actual emotional response occurs upon the realization of the outcome. For instance, research indicates that the emotional response occurs upon realizing the outcome. Grimani et al. (2024) found that while anticipatory and anticipated emotions influence decision-making, anticipated emotions are specifically felt when the outcome is experienced. Similarly, Marshall and Brown (2006) discuss how emotional reactions to performance outcomes depend on the standards for gauging success and failure, emphasizing that the emotional response is tied to realizing the outcome. Other authors confirmed that disappointment and regret are counterfactual emotions that play a significant role in decision-making under risk and uncertainty. These emotions occur when potential outcomes of the same option or different options are compared unfavorably. The study of Bell (1985) explores how disappointment, a psychological reaction to unmet expectations, influences decision-making. The author highlights that decision-makers may go to great lengths to avoid potential disappointment, leading to deviations from expected utility maximization. Similarly, the study of Marcatto and Ferrante (2008) presents a tool for assessing these emotions, demonstrating their significant impact on decision-making processes. Their findings show that regret and disappointment arise when potential outcomes are compared unfavorably, affecting future choices. Another article by Bell (1982) provides evidence that people often deviate from expected utility maximization due to the influence of regret and disappointment. Nevertheless, as stated by Rad and Balas (2007), people

are motivated to avoid experiencing unpleasant emotions. Affective or anticipated emotional risk describes the possibility that people will have negative emotional responses to actual or perceived threats or uncertainties. Anxiety, fear, stress, and uncertainty are some examples of these feelings.

Emotions play a critical role in decision-making under risk and uncertainty in complex environments like those involved in human resource selection strategies. Researchers have emphasized emotion's role in the human resource selection decision-making process, focusing on two aspects of emotions: anticipated and actual (Rad & Balas, 2007). The risk-as-feelings model, supported by a significant body of research, suggests that gut feelings, often unrelated to a decision's consequences, can significantly influence the final decision (Loewenstein et al., 2001).

On the other hand, sociology professor Lauren A. Rivera wrote “Go with Your Gut: Emotion and Evaluation in Job Interviews”, in 2015. Rivera's paper examines how emotions influence the hiring process in the United States. Rivera (2015) conducted in-depth interviews with hiring professionals at elite professional service firms.The author discovered that human resource professionals frequently allow their gut feelings about applicants to guide their assessments and hiring decisions. They look for signs of enthusiasm and likability to assess a candidate's potential for success in the role and with the company. However, it was also found that these subjective assessments may be skewed and lead to discrimination against some groups of job seekers. Some interviewers may view less competent or less professional candidates perceived as overly emotional or who express strong emotions during the interview. The findings suggest that emotions play a significant role in the selection process and stress the importance of identifying and addressing biases in the workplace.

The study by Božac and Kostelić (2021) involved a survey of 119 HR managers in Croatia, focusing on 55 responses related to strategic problem-solving and 48 on strategic planning. It explored how HR managers' emotional responses affect their decision-making, particularly in functions like hiring. The findings of (Božac & Kostelić 2021) study reveal that HR managers can appraise strategic events as positive, neutral, or negative, with their emotional responses varying accordingly. Positive events typically elicited enthusiasm, whereas negative events led to frustration and disappointment.

The study highlights that strategic problem-solving tends to cause greater emotional turmoil than strategic planning, suggesting the need for more robust emotional support systems for HR managers. These emotional dynamics are crucial for organizational decision-making and can significantly impact job satisfaction and require motivational incentives to manage effectively. Božac and Kostelić's research emphasizes the importance of acknowledging and addressing these emotional influences in HR practices, especially during economically challenging times.

On the other hand, one of the most critical challenges in recruitment and selection is the cumulative effect of small biases in hiring evaluations, which can lead to substantial disparities in workforce diversity over time. Hardy et al. (2021) conducted a study analyzing how minor biases in hiring assessments—such as affinity bias, implicit stereotypes, and emotional influences—can compound and impact organizational decision-making. Their findings indicate that a small preference for candidates from similar backgrounds or with certain demographic attributes can create a self-reinforcing cycle, resulting in homogeneous workplaces. This aligns with the Risk-as-Feeling (RaF) theory, which suggests that emotions, rather than purely rational evaluations, influence decision-making processes in uncertain situations (Loewenstein et al., 2001).

Furthermore, Hardy et al. (2021) found that recruiters’ emotional reactions to applicants play a crucial role in hiring outcomes. The study demonstrated that perceived competence, leadership potential, and even job fit were significantly influenced by subjective impressions rather than objective qualifications. This highlights the importance of structured selection methods and bias-awareness training, which can mitigate the effects of such biases and promote more equitable hiring decisions. By integrating quantitative data and experimental evidence, their research underscores the tangible impact of RaF-based biases on recruitment, reinforcing the need for interventions such as blind resume screening, standardized evaluation criteria, and AI-assisted hiring tools to reduce emotional bias.

3. Culture and Social Norms and Similarity Effect

Organizational culture is the unspoken but influential set of values, norms, beliefs, attitudes, and assumptions that inform employee actions and decisions. The term "values" is used to describe those things that are thought to be crucial to how individuals and groups act (Armstrong, 2020). "Norms" refer to socially accepted standards of conduct (Armstrong,2020). The hiring practices of human resource professionals have been the subject of studies for quite some time. The "similar-to-me" effect, in which hiring managers favor applicants like themselves, is a hotly debated subject. For example, in the similarity effect, decision-makers may be more likely to favor candidates who are similar to themselves or who have qualities that they perceive as being desirable (Carnahan & Moore, 2023; Elliott & Smith, 2004; Rivera, 2012). They may be more likely to overlook or discount information that does not support their initial judgments or preferences (Schmidt & Hunter, 1998). Therefore, decision-makers may prefer to hire people like them and may pass over otherwise qualified applicants who are perceived to be too different (Díaz et al., 2019). These similarities could be due to the race similarity (Derous et al., 2012; Lee et al., 2015; Millman, 2016; O'Leary et al., 2008), age similarity (Jiang, et al., 2010), gender similarity (Antonovics, et al., 2005; Graves & Powell, 1995; Kaplan et al., 2014). Turban and Jones (1988) coined "demographic similarity" to describe how closely people are alike on various demographic variables.

According to two experiments, the "similarity effect" (Díaz et al., 2019) impacts recruitment evaluations. The first experiment in this study found that demographic similarities between the candidate and the recruiter affect the recruiter's liking through perceptions of similarity. The second experiment found that the job's desirability moderates the impact of similarity on recruiter perceptions, consistent with previous research showing that demographics can affect perceptions of similarity (Cotton et al., 2008; Graves & Powell, 1995). This can result in a lack of representation from diverse backgrounds and perspectives in the workplace and contribute to creating a culture that is not inclusive or supportive of all employees.

4. Past Experiences Effect

Several variables that have little or no effect on cognitive risk assessments influence emotional reactions to risks. These include the vividness of imagined outcomes, personal exposure or experience with outcomes, and past conditioning (Loewenstein et al., 2001). The lessons we learn from the past can influence our present and future choices. According to the research by Juliusson et al. (2005), individuals' current choices are affected by their past ones. Logic dictates that others will be more likely to follow suit in a similar situation when a choice pays off. On the other hand, it is human nature to try to learn from one's mistakes (Sagi & Friedland, 2007). This matters because it shows that it is not always wise to base future choices on past actions. Contrary to popular belief, highly successful investors make their decisions based on a thorough analysis of available options rather than being influenced by sunk costs from the past (Juliusson et al., 2005)

5. Technology Effect

Financial systems, sales, marketing, and production are just some of the areas of business that technological advancements have profoundly impacted. Human resource (HR) practices like personnel screening and selection have attracted more attention to using information technologies (IT). For example, Nike employs Interactive voice response (IVR technology for initial phone-based applicant screening, then moves on to computer-assisted interviews and finally conducts in-person interviews (Thornburg, 1998). While human decision-making is often used for selection and recruitment choices, various applications of (IT) are increasingly being utilized to support these processes, making it a valuable area for Human-Computer Interaction (HCI), including Artificial Intelligence (AI) research (e.g. Albert, 2019; Chapman & Webster, 2003; Koivunen et al., 2019; Koivunen et al., 2022; Tambe et al., 2019). For instance, e-recruitment has identified specific tools such as online job boards, job ad aggregators, employer websites, mobile recruiting, and social media that are used by decision-makers (Thompson et al., 2008), providing insight into how these channels are utilized in matching practices (Chapman & Gödöllei, 2017).

With the evolution of AI, research suggests that AI-powered recruitment systems enable organizations to access a broader and more diverse talent pool. By improving consistency in the

selection process, these systems support the inclusion of a more varied applicant base (Köchling & Wehner, 2023; Mori et al., 2024). AI technology also enhances the scalability of HRM processes by expanding the number of candidates considered, significantly reducing recruitment timelines and costs, and promoting greater socioeconomic diversity among new hires (Rodgers et al., 2022). Jacksch and Klehe (2016) demonstrated that the benefits of transparency are restricted to non-threatening performance dimensions, meaning that transparency can be helpful for some candidates but detrimental to others if the attribute being evaluated is linked to a negative stereotype related to the social identity of the candidates.

Much criticism has been leveled at the newest generation of computational tools as of late (Cappelli, 2019); moreover, implementing AI in the recruiting context can raise significant ethical concerns for society (Tambe et al., 2019). This was demonstrated by Amazon's decision in 2018 to abandon its hiring algorithm, which was found to be biased and discriminatory towards women (Mujtaba & Mahapatra, 2019). While issues with the accuracy of recommendations not aligning with personal preferences may be merely inconvenient when people are “users” or “consumers” of algorithmic systems (such as when following a recommendation from a movie streaming service) (Hunkenschroer & Luetge, 2022), it becomes problematic when AI decisions are included in hiring processes because applicants cannot decline them (Lee, 2018). AI systems in recruitment risk inheriting biases from historical data, excluding candidates based on age, background, or non-traditional career paths (Mori et al., 2024). While accurate, they often disadvantage underrepresented groups and struggle to assess qualitative traits such as leadership (Köchling et al., 2020). Candidates perceive AI processes as dehumanizing, less fair, and lacking trust due to limited transparency and interpersonal engagement (Lee, 2018; Köchling & Wehner, 2023). Privacy concerns arise when personal data is used for decision-making (Köchling et al., 2024). These ethical concerns regarding the use of AI possibly add to the exit cognitive bias of the recruiters and hiring managers. Addressing these issues is essential for equitable and effective AI use in HR.

Comparative Analysis In HR Decision-Making Models

Understanding the theoretical underpinnings of decision-making models is crucial for enhancing HR practices, particularly in the realms of selection and recruitment. This section compares three main models: Rational Decision-Making, Bounded Rationality, and Risk-as-Feeling (RaF). Each model offers distinct perspectives on decision-making, influenced by varying assumptions about human behavior and cognitive capabilities. The following comparative analysis, summarized in Table (1), delves into the authors, general decision-making approaches, limitations, and specific implications of each model for HRM.

Rational Decision-Making is traditionally associated with classical economists such as Adam Smith and John Stuart Mill, who posited that decision-makers are fully rational agents who aim to maximize utility based on complete information (Smith, 1776; Mill, 1848). This model assumes an ideal decision-making environment where individuals make the most economically prudent decisions. However, this model's primary limitation lies in its assumption of complete information and absolute rationality, which is rarely achievable in real-world scenarios, especially within HR contexts. In HR practices, strictly applying this model might lead to an overly rigid recruitment process that overlooks the nuanced aspects of human behavior, such as emotional intelligence and cultural fit, potentially leading to a workforce that excels in qualifications but not necessarily in team cohesion or adaptability.

Bounded Rationality, introduced by Herbert Simon, addresses some of the limitations of the Rational Decision-Making model by acknowledging that decision-making occurs under constraints of limited information, limited cognitive processing capability, and limited time (Simon, 1957). This model is more aligned with the practical complexities HR professionals face, allowing for the use of heuristics to make satisfactory rather than optimal decisions. The bounded rationality model suggests that HR decisions are made with the best available information, albeit incomplete, leading to more pragmatic and expedient recruitment processes. However, this approach may also introduce biases and oversimplifications in candidate evaluation, potentially affecting the quality and diversity of recruitment outcomes.

Risk-as-Feeling (RaF), proposed by George Loewenstein, adds an emotional dimension to the decision-making process, suggesting that people's decisions are significantly influenced by their emotional responses to potential outcomes, often overriding rational analysis (Loewenstein, 2001). In HR, this model has profound implications for recruitment and selection decisions. It suggests that recruiters' 'gut feelings' or intuitive reactions to candidates can heavily influence hiring decisions, for better or worse. This can lead to more dynamic and person-centered hiring practices, potentially enhancing candidate engagement and cultural fit. Nevertheless, it can also lead to inconsistencies and biases if emotional reactions are not appropriately managed or conflict with organizational policies or diversity goals.

Table 1. presents these models side-by-side, illustrating the foundational differences in their approach to decision-making, their recognized limitations, and their practical implications for HRM, specifically in selection and recruitment decisions.

Table 1. Comparative Analysis in HR Decision-Making Models

Name of the Model	Rational Decision-Making	Bounded Rationality	Risk-as-Feeling (RaF)
Authors	Classical economists like Adam Smith and John Stuart Mill	Herbert Simon	George Loewenstein
Decision-Making in General	Based on the assumption that decision-makers have complete information and seek to maximize utility fully rationally.	Recognizes that decision-making is limited by information availability, cognitive limitations, and the finite time available to make a decision.	Emphasizes the role of emotions and feelings in decision-making, suggesting that emotional responses can dominate or bias rational thought.
Limitations	Often unrealistic in assuming perfect information and rationality. Does not account for emotional, psychological, or situational factors.	While more realistic, it still relies on the availability of information and the decision-maker's capacity to process it.	This can lead to decisions that are overly influenced by transient emotions or feelings, potentially ignoring more objective or rational considerations.
Implications on HRM (Selection and Recruitment Decisions)	May lead to overly structured recruitment processes that fail to consider candidate qualities beyond credentials, potentially overlooking factors like cultural fit or adaptability.	Encourages the use of heuristics and more straightforward decision-making rules, which can streamline recruitment but may also introduce biases or lead to suboptimal choices due to over-simplified evaluation criteria.	It affects recruitment by potentially prioritizing 'gut feelings' about a candidate’s fit or suitability, which can positively and negatively influence diversity and inclusion efforts depending on how emotions are managed.

IMPLICATIONS AND FUTURE RESEARCH POSSIBILITIES

Risk-as-feeling has important implications for selection and recruitment, as it highlights the need for recruiters to consider the emotional and psychological factors that may influence candidates'

decisions and preferences. Understanding risk-as-feeling can help recruiters anticipate and address candidates' diverse perspectives and motivations and tailor their recruitment efforts accordingly. This may involve providing additional information or resources to help candidates understand the risks and rewards of different job opportunities or highlighting the support and resources available to help them navigate any challenges or uncertainties that may arise.

In addition to considering risk-as-feeling, it is also important for recruiters to be aware of potential biases that may influence their perceptions and assessments of candidates. These biases can lead to unfair or unequal treatment of candidates and negatively affect the candidates and the organization. To mitigate the impact of these biases, recruiters can use various strategies, such as using structured interview questions and objective criteria to evaluate candidates and seeking input from diverse perspectives when making decisions (Dipboye et al., 2014). Understanding risk-as-feeling and addressing potential biases can help recruiters make more informed and effective decisions about selecting candidates. This, in turn, increases the chances of success for both the candidates and the organization.

It is important to note that there is a lack of research on risk-as-feeling and its implications for selection and recruitment. While risk-as-feeling has been widely studied in other contexts, such as decision-making and risk perception (Loewenstein, 2001), its relevance and application to selection and recruitment have not been extensively explored. Further research is needed to understand better how risk-as-feeling influences candidates' and recruiters' decisions and preferences during the selection and recruitment process and to identify effective strategies for addressing these factors practically and ethically. This may involve examining the emotional and psychological factors influencing candidates' risk tolerance, willingness to take on challenges, goals, values, and personal circumstances. By conducting more research on this topic, we can better understand the emotional and psychological factors that shape candidates' decisions and preferences during the selection and recruitment process and identify effective strategies for addressing these factors practically and ethically. This can ultimately lead to more informed and effective recruitment decision-making and increase the chances of success for both the candidates and the organization.

CONCLUSION

The Risk-as-Feeling (RaF) theory offers a comprehensive framework for grasping the emotional and psychological intricacies involved in the decision-making processes of recruitment and selection. By acknowledging the profound effects of emotions, past experiences, biases, and social norms, organizations are enabled to cultivate hiring practices that are not only fairer but also more inclusive.

Moreover, the integration of technology, specifically the ethical deployment of AI within recruitment processes, presents a critical avenue for enhancing these practices. The use of structured interviews, blind evaluations, and AI tools can help mitigate biases and improve the efficacy of recruitment procedures. However, it is crucial to address the ethical concerns associated with AI, such as potential dehumanization, privacy issues, and trust, to ensure outcomes are equitable.

Future research should delve into how RaF influences recruitment outcomes, with a particular focus on the interaction between emotional factors, cultural diversity, and technological advancements. This investigation is essential for understanding how emotional and psychological factors can be effectively balanced with technological tools to refine recruitment strategies. Such exploration will aid organizations in aligning their recruitment efforts with broader objectives aimed at fostering diversity, inclusion, and innovation, thereby enhancing both organizational performance and candidate experiences.

CONFLICTS OF INTEREST

The author declares that no conflicts of interest are found in this research.

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BOOK REVIEW

PRINCIPLES, THEORIES, AND PRACTICES: STRUCTURAL EQUATION MODELING

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About the Author

Assistant Professor Dr.Apinya Ingard is a distinguished scholar and practitioner within the realm of statistics and quantitative research methodologies, which positions her as an authoritative figure to author a comprehensive guide on structural equation modeling (SEM). Her extensive academic and professional background, characterized by notable scholarly accomplishments, a wealth of hands-on experience, and a prolific publication record, firmly establishes her credibility as a preeminent expert in this discipline.

Dr.Ingard's academic credentials are exemplary, comprising a Doctor of Philosophy (Ph.D.) in Research and Statistics in Cognitive Science obtained from Burapha University, a Master of Science (M.Sc.) in Applied Statistics from the National Institute of Development Administration, and a Bachelor of Science (B.Sc.) in Accounting from Bangkok University. This robust educational foundation in statistical theory and pragmatic application forms the bedrock of her expertise in SEM, a sophisticated statistical approach that necessitates an in-depth comprehension of both theoretical constructs and their empirical implementations.

Beyond her academic qualifications, Dr.Ingard possesses an extensive repertoire of professional experience. Currently, she holds the position of Associate Dean for Research and Development Cooperation at the Faculty of Information and Communication Technology, Silpakorn University. Her prior appointments include Associate Dean for Academic Affairs and Research at the same faculty, as well as Head of the Statistics Department at the Faculty of Science and Technology, Bangkok University. These leadership roles not only highlight her capacity to synthesize complex theoretical and empirical information but also underscore her ability to communicate such knowledge effectively and clearly to a diverse audience. Furthermore, her extensive teaching experience at several prestigious institutions in Thailand emphasizes her dedication to educational excellence and pedagogical innovation in advanced statistical methodologies.

Dr.Ingard's contributions to the field of quantitative research are substantial and widely acknowledged. She has received an array of accolades for both her research endeavors and presentations, including multiple Best Research and Best Presentation awards at renowned international conferences. Her publication record showcases numerous peer-reviewed articles in esteemed journals, reflecting both the quality and impact of her scholarly work. This enduring commitment to research and dissemination of knowledge illustrates her active engagement with

the dynamic and evolving landscape of quantitative research methodologies. In conclusion, Dr.Ingard's exceptional qualifications and comprehensive experience render her uniquely equipped to impart valuable insights and guidance on structural equation modeling to both students and researchers within the academic community.

About the Book

Apinya Ingard's text, "Principles, Theories, and Practices: Structural Equation Modeling," presents a systematic and accessible framework for comprehending and implementing Structural Equation Modeling (SEM). This publication is designed to facilitate a progressive understanding of SEM, from foundational concepts to practical applications, thereby serving both students with a foundational statistical background and researchers aiming to advance their methodological expertise. The text's principal strength resides in its balanced integration of theoretical constructs with pragmatic guidance, rendering complex statistical concepts more approachable.

The book is organized into nine distinct chapters.

Chapter 1, "Developing Structural Equation Models and the Design of Quantitative Research," establishes the importance of robust research design within a quantitative context. Ingard adeptly illustrates the process of constructing a coherent research framework through a systematic integration of pertinent literature, theoretical perspectives, and previous empirical findings. This chapter meticulously navigates diverse scenarios of variable relationships and interactions, elucidating the construction of appropriate research models, the definition of variables, and the formulation of testable hypotheses. Notably, the inclusion of clear diagrams enhances the reader's comprehension by visually representing various model structures.

Chapter 2, "Structural Equation Modeling and the Research Model," examines the interrelationship between SEM and overarching research models. This chapter clarifies the vital role of SEM in assessing and refining research models, emphasizing its capacity to unify confirmatory factor analysis and multiple regression techniques. Ingard effectively underscores SEM's utility in managing intricate relationships, especially those that involve latent variables along with direct and indirect effect identification. The inclusion of multiple illustrative case studies and model diagrams from a spectrum of disciplines serves as a substantive conduit from theoretical understanding to practical application, demonstrating SEM's efficacy in scrutinizing complex causal relationships across various social science realms.

Chapter 3, "A Basic Understanding of Structural Equation Modeling," offers a foundational introduction to essential terminology and concepts central to SEM. Ingard addresses potentially challenging statistical concepts with exceptional clarity and precision, providing well-structured definitions of essential terms such as latent variables, exogenous and endogenous latent variables, structural versus measurement models, observed variables, factor loadings, and the distinction between direct, indirect, and total effects. The chapter proceeds to elucidate core assumptions underlying SEM and the crucial process of evaluating model fit. Ingard meticulously delineates the significance of establishing model fit through discussions on the chi-square test and various fit indices (e.g., GFI, AGFI, CFI, TLI, RMSEA, RMR, SRMR), offering practical interpretations and thresholds for acceptable model fit levels. The chapter is further enriched by real-world examples and cogent guidelines for sample size determination, including practical applications of online calculators and Hoelter's critical N.

Chapter 4, "Approaches and Steps in Developing Structural Equation Models," delineates two predominant approaches to SEM analysis: the two-step approach proposed by Anderson and Gerbing (1988) and the four-step methodology articulated by Mulaik and Millsap (2000). Ingard provides a detailed exploration of the subtleties inherent in each approach, emphasizing critical considerations and procedural steps. The author's elucidations are particularly beneficial in clarifying the often-confounding concepts of model identification and specification. A noteworthy addition is the comprehensive examination of normality assessment and outlier management, wherein Ingard methodically guides the reader through techniques for detecting non-normality and identifying outliers. This discussion includes valuable recommendations for addressing violations of normality assumptions, enhanced by thorough explanations of the Jarque-Bera test for multivariate normality and the Mahalanobis distance measure for outlier identification. By contextually integrating these statistical

techniques within the broader SEM analysis framework, the author provides a balanced and pragmatically relevant treatment of this pivotal aspect of the research process.

Chapter 5, titled "Step-by-Step Guide to Analyzing Measurement Models Using AMOS," serves as a comprehensive practical resource for conducting Structural Equation Modeling (SEM) analyses utilizing AMOS software. The chapter's efficacy is largely attributable to its meticulous, sequential instructions, augmented by a plethora of illustrative screenshots of the AMOS interface. This structured instructional approach, coupled with extensive visual aids, renders the analytical process highly accessible to readers at varying levels of expertise. The author adeptly guides readers through the intricacies of data entry into AMOS, model specification, and the implementation of the analytical procedures. Such a pragmatic approach is pivotal in bridging the divide between theoretical constructs and practical application, thus empowering readers to confidently engage in their own SEM analyses. Notably, the chapter provides targeted guidance on model modifications informed by the modification indices generated by AMOS, which is particularly beneficial for novices in the software, ensuring proficient navigation of the model refinement process until an adequate model fit is attained. Additionally, the chapter furnishes pragmatic advice on the interpretation of AMOS output, encompassing model fit assessments, parameter significance, and data diagnostics, thereby establishing it as an invaluable resource for researchers embarking on SEM methodologies.

Chapter 6, "Guidelines and Examples of Reporting Results of Measurement Model Analyses," delves into the paramount task of interpreting and articulating the results derived from measurement model analyses. This chapter is particularly instrumental in illustrating how to distill complex statistical data into easily comprehensible formats suitable for diverse audiences. The author provides cogent guidance on the formulation of effective reports that integrate both numerical and visual representations of analytical findings. Building on the foundational concepts established in the preceding chapter, this segment presents practical methodologies for the computational analysis necessary to derive critical indices such as composite reliability (CR) and average variance extracted (AVE). The inclusion of work examples alongside clear computational explanations significantly enhances the chapter's practical applicability for researchers engaged in SEM.

Chapter 7, "Construct Validity and Discriminant Validity," addresses the essential considerations in the evaluation of measurement model validity. The author meticulously elucidates the significance of establishing both construct validity and discriminant validity, equipping readers with the tools necessary to determine whether their selected indicators accurately reflect the intended latent constructs and whether the latent variables are distinct entities. The chapter offers an in-depth exploration of two predominant methodologies for assessing discriminant validity: the correlation-fixing approach, which entails setting correlations between latent variables to 1.00, and the Fornell-Larcker criterion, which juxtaposes the average variance extracted (AVE) against the squared correlations between latent constructs. The author provides a thorough and systematic guide to executing these assessments within the context of research endeavors and interpreting the resulting data to ensure construct validity. This chapter adeptly synthesizes theoretical foundations with practical, step-by-step methodologies for conducting these analyses using AMOS software.

Chapter 8, "Step-by-Step Guide to Analyzing Structural Models Using AMOS," extends the practical applications of AMOS to the analysis of structural models. Building on the insights gained from the prior chapter's discussion of measurement models, this chapter presents a detailed tutorial on employing AMOS for hypothesis testing concerning the relationships among latent variables. The author systematically guides readers through the process of specifying the structural model within AMOS, incorporating residuals, and utilizing the software for the assessment of overall model fit while evaluating individual parameter estimates. Additionally, valuable practical insights are offered regarding the management of model misspecification issues and the application of modification indices, thereby facilitating model refinement to achieve an improved fit to the data. The chapter's comprehensive step-by-step guidance, supplemented by an abundance of AMOS output screenshots, markedly enhances its practical relevance for readers.

Chapter 9, "Guidelines and Examples of Reporting Results of Structural Equation Model Analyses," furnishes essential guidance on effectively articulating the outcomes of SEM analyses. The author meticulously navigates readers through the process of crafting coherent and informative research reports that encapsulate the findings of their investigations. Emphasizing the critical nature of presenting both overall model fit assessments and the granular details of individual hypothesis tests, the

chapter includes well-structured tables as templates for organizing and conveying the key findings from structural model analyses, encompassing standardized and unstandardized regression weights, direct and indirect effects, total effects, and the R-squared values for each dependent variable. The author's integration of these organizational tools, along with thorough explanations, ensures that readers are equipped to communicate their research findings with clarity and precision. The chapter's practical value is further reinforced by the inclusion of illustrative examples that demonstrate effective reporting practices.

Review

Apinya Ingard's work, "Principles, Theories, and Practices: Structural Equation Modeling," represents a significant contribution to the corpus of literature surrounding advanced statistical methodologies. This text adeptly bridges the chasm between theoretical frameworks and practical implementation of Structural Equation Modeling (SEM), a robust analytical technique increasingly employed across a multitude of research disciplines. The book's strength resides in its comprehensive and accessible approach, catering to both novices in SEM and experienced researchers seeking to augment their methodological toolkit.

One of the foremost strengths of the volume is its clear and systematically organized structure. The narrative unfolds logically, commencing with foundational principles and progressively advancing to sophisticated techniques, thus ensuring that readers, regardless of their prior exposure to SEM, can maintain comprehension. The author effectively harmonizes theoretical elucidations with practical demonstrations, employing myriad real-world examples to elucidate essential concepts. Particularly commendable is the integration of AMOS software throughout the discourse. This integration is executed with exceptional clarity, featuring detailed step-by-step instructions, abundant screenshots, and well-constructed diagrams that effectively illustrate the application of SEM using AMOS. Such an approach empowers scholars to not only grasp statistical procedures but also to engage actively in their own SEM analyses through the widely utilized AMOS platform. The inclusion of various work examples substantially enhances the text's practical utility, thereby enabling researchers to navigate the SEM process with confidence.

Another notable strength is the author's focus on model fit assessment and modification. The text meticulously explicates various fit indices—such as Chi-square, GFI, AGFI, CFI, TLI, RMSEA, and RMR—while providing clear guidelines for their interpretation. This rigorous treatment is further augmented by a thorough investigation of the assumptions that underlie SEM, which includes discussions on normality testing, outlier detection methods, and strategies for addressing assumption violations. The practical guidance on model modification, particularly the emphasis on utilizing modification indices provided by AMOS, constitutes an invaluable resource for researchers confronting intricate SEM models.

The author's detailed exploration of construct and discriminant validity is equally impressive. Navigating these often-complex topics skillfully, the author equips readers with the requisite knowledge and expertise to ensure the validity and reliability of their measurement models. This exploration is further enriched by an integration of both theoretical foundations and pragmatic advice concerning the accurate reporting of these components. The systematic and detailed approach to assessing these dimensions of validity enables readers to confidently establish the reliability of their research.

The book's provision of explicit guidance on interpreting and reporting SEM results is also noteworthy. The author presents clear templates for tables and figures, thereby facilitating the effective communication of complex statistical findings to diverse audiences, including both students and seasoned researchers. The presentation of statistical outputs is handled with commendable clarity, exemplifying the practical applications and interpretations of software-generated results.

Nevertheless, although the book is laudable in its comprehensive coverage, several areas could benefit from enhancement in future editions. For instance, while the exposition on the two-step and four-step approaches to SEM is thorough, a discussion on additional established model development strategies could further enrich the reader's methodological repertoire. Additionally,

while the focus on AMOS software is well-articulated, a brief overview of other prominent SEM software packages, such as Mplus or lavaan, would acknowledge the spectrum of available options and thus broaden the relevance of the text. Finally, the addition of an updated bibliography reflecting recent advancements in the field of SEM, particularly regarding software developments and methodological innovations, would further augment the text's value.

In conclusion, “Principles, Theories, and Practices: Structural Equation Modeling” serves as a valuable resource for both researchers and students engaged with SEM methodologies. The text effectively reconciles theoretical understanding with practical application, a feat significantly bolstered by the author's extensive expertise in statistics and quantitative research. The clarity of the author’s explanations, coupled with numerous practical examples and meticulously detailed, step-by-step instructions on employing AMOS software, renders complex statistical concepts accessible. The book’s comprehensive guidance on model construction, assessment, modification, and reporting empowers researchers to navigate the complexities inherent in SEM with confidence. While minor refinements could enhance future editions, the volume stands as a pivotal resource for both novice and advanced users, facilitating a deeper understanding of complex statistical techniques.